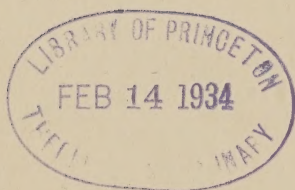


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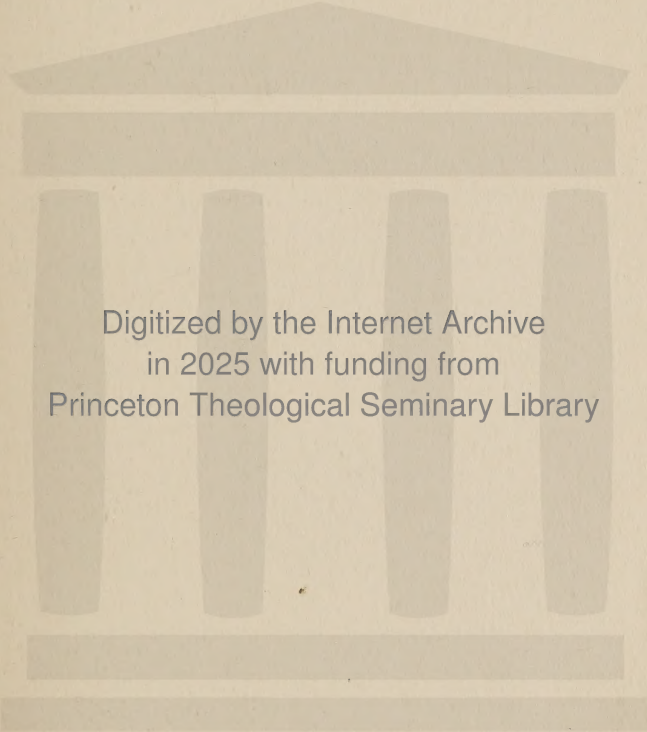


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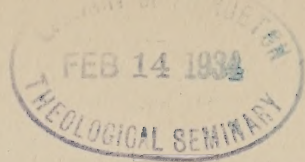
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ADA HART ARLITT, PH.D.
PROFESSOR AND HEAD OF THE DEPARTMENT
OF CHILD CARE AND TRAINING
SCHOOL OF HOUSEHOLD ADMINISTRATION AND
GRADUATE SCHOOL OF ARTS AND SCIENCES
UNIVERSITY OF CINCINNATI



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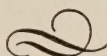
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ARLITT'S
ADOLESCENT PSYCHOLOGY
E. P. 1

MADE IN U.S.A.

To
DR. HARVEY A. CARR
THIS BOOK IS DEDICATED BY
HIS GRATEFUL STUDENT



PREFACE

During recent years research in adolescence has thrown light on many aspects of adolescent behavior heretofore but little known. Contact with parent groups, both in the discussion of problems which arise in dealing with older children and in collecting the mass of experiential data which each group presents, has added to the material developed through intensive research. Additional facts of importance have come from researches in the summer-camp field. The mass of data from case studies of psychopathic and neurotic older children has added to our understanding of both the normal and the atypical adolescent.

In this book, intended primarily for students in colleges, universities, and teachers colleges and for educators of adolescents, the author has made use of material from all of the above fields. It is hoped that the book will aid in the understanding and interpretation of adolescent behavior. Much remains to be learned both from research and from controlled observation. The author has attempted to indicate the points at which gaps occur and to summarize data in the fields in which research has been plentiful.

The author is indebted to Dr. Harvey A. Carr for criticisms and suggestions in regard to the material to be included in this text. She is also indebted to Flora M. Thurston and her colleague, Afton Smith, for reading the manuscript and for suggestions as to form. The following

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ADA HART ARLITT

Cincinnati, 1933

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Chapter I

INTRODUCTION

THROUGHOUT history the adolescent has received attention and has been a person of interest to family, tribe, and state. At no time has he been of more vital concern than at the present. He no longer becomes a full-fledged member of the tribe or group after what would seem to a complex society like our own an exceedingly brief period of instruction and initiation. Instead he passes through a long transition phase in which problems of every sort may develop.

In order to understand fully the problems presented by present-day adolescents, knowledge of the attitude toward and ceremonies surrounding late childhood and adolescence in earlier times is necessary. In primitive tribes and earlier civilizations, the onset of puberty marked the period at which the child took his place with the adults of the tribe, regardless of the fact that growth and development took place for some time after this period. Today social conditions and the ideals of the group make adolescence a prolonged period rather than a point at which manhood or womanhood begins, but it is hardly to be wondered at that the myth of a sudden and violent change at adolescence is still believed by the average individual. Primitive ceremonies were, in many cases, designed to make just such a violent break between late childhood and adolescence as many parents feel occurs. The boy passing into manhood was supposed

suddenly to change from the estate, thoughts, attitudes, beliefs, and activities of a child and to think and behave only as a man. Among the Kakain society of Geram, actual death and resurrection is simulated. The initiates take leave of all of their female relatives because these are not expected to be seen again.¹ Certain Australian tribes dig a grave covered with leaves on the bottom to serve as a couch. At the side of the grave are placed the novices. After brief ceremonies these go and live by themselves and do not return until they are permitted to marry.

Among the Powhatan Indians a drink, wysoccan, is offered to the initiates, which for the time being takes away their wits altogether. They are supposed, during the period in which they are under its influence, to have forgotten all that occurred to them during childhood, all that they had experienced up to the time that they became men. Should an initiate show any sign of remembrance, he must go through the ordeal again at the possible sacrifice of his life. Complete separation from all that constitutes a child's life among the women and children of the tribe could hardly be secured more effectively.²

The ordeals which are a part of most initiations are for the purpose of testing the courage and strength of the novices and of magnifying the importance of the older members of the tribe. Attempts to terrorize novices are common. In Australia, where the bull-roarer is already known to the initiates, other noises of a terrifying type are made. In many tribes, however, the use of the bull-roarer alone suffices to terrorize them.³

¹ Webster, Hutton, *Primitive Secret Societies*, The Macmillan Co., New York, 1908, p. 39.

² Webster, Hutton, *op. cit.*, pp. 56-57.

³ Howitt, A. W., *Native Tribes of South-east Australia*, The Macmillan Co., London, 1904, pp. 516 ff.

Descriptions of such ordeals and ceremonies for both boys and girls follow. Some are extremely serious. Others involve much merriment. All are for the purpose of making a distinct break between childhood and adolescence, between the child and the mature member of the tribe.

"The present ceremony has been observed by the different tribes of Mission Indians of southern California from time immemorial. It has been described under various names, such as the 'roasting of girls.' It was learned from careful inquiry among the old women that the object of the ceremony is to prepare the girls for matrimony. As they arrive at the age of puberty they are informed of the object of the ceremony and told that they have been selected for it. They look forward to the event with pleasure rather than dread, for contrary to what has been represented there is nothing in it that is repulsive. The object of the present account of this ceremony as it was witnessed is particularly to show its relation to a certain sacred curved stone which was then new to the author, and to point out its possible relation to the sacrificial yoke or 'Maya stone' of Mexico.

"In the open space between the booths prepared for the guests a space was cleared for the dancers. Near this a pit was dug about three feet deep and five feet in diameter. In this pit a fire had been built which had warmed the damp earth and caused steam to arise through the green herbs with which the pit was nearly filled. The girls appeared wrapped in blankets. They lay down upon the green herbs and were covered with blankets. Finding themselves comfortable, they appeared very happy, peering out through their covers, laughing, and chatting. They remained here four days and nights continuously, except that occasionally they were wrapped in a blanket to go away for food. Sometimes acorn meal porridge was brought them to drink. During these four days the old women, who appeared very much in earnest, danced and sang around the pit, waving branches of sagebrush to drive away the spirits. These women intended to keep up their dance constantly, but worn out with old age and continuous effort they sometimes dropped on the

ground and fell asleep. Having rested they would then return to the dance. Occasionally the visitors would join in a wild boisterous dance, shouting, singing, and beating time with rattles. These efforts would encourage the tired old women upon whom the responsibility of continuous dancing seemed to rest.

"Once during the dancing an old woman appeared and scattered a handful of silver coins over the crowd. Anyone was permitted to secure the coins, and the act caused much merriment. It was explained that this was done to teach the girls to be generous. After this many yards of calico and gingham and ten sacks of wheat were brought and given away to the old and needy, in order to teach the girls by example to be kind to the old and the poor. After this quantities of wild seeds used for food were brought and sowed broadcast on the girls. This was done to cause them to be prolific. During the ceremony grain was also often showered over the crowd by old women.

"As the end of the ceremony drew near, the chief ordered all strangers away. The girls, with blankets wrapped about them, arose and received garlands of leaves prepared by friends and placed upon their heads. They were then led away to a hillside where they were shown the sacred stone, which it was said was to protect them. This stone is about 13 by 15 inches in size, shaped like a yoke, and thirty-five pounds in weight. . . . Then friends of the girls hung their garlands on rocks and bushes about, and the sacred stone was buried again. Grain was scattered over all and the ceremony was complete.

"It is believed, and taught the girls, that the sweating in the pit and the remaining ceremonies banish bad spirits from the girls; also that the sacred stone entertains and controls these spirits and that they will not return to the girls as long as these do right. . . .

. . . "The following information as to the girls' puberty ceremony was obtained on inquiry in 1903 among the Luiseño Indians of Pauma and Rincon in northern San Diego county. These Indians are of Shoshonean stock, while those at Campo described by Mr. Rust belong to the Yuman family.

"A fire was made in a hole in the ground. In this tule was placed. The girls were laid on this on their backs. Two flat stones were heated and laid on their abdomens. Several girls,

generally relatives, were usually put through the ceremony at once. They were called *ās*, and the ceremony *weghenish*. The ceremony lasted four or five days. A head-dress of a plant called *engwish* was worn by the girls for several months after the ceremony. During this period they could eat neither meat nor fish. The duration of this restriction does not seem to have been altogether fixed. The longer it was observed the better it was thought to be for the girls. In some cases it is said to have lasted a year. The ceremony was performed in order to make good women of the girls. They were talked to by their relatives and advised to be good and to give water and food to people.

"The conclusion of the girls' period of restrictions at puberty was marked by paintings made by them on the smooth surfaces of large granite boulders. These paintings, some of which can still be seen, especially near the old village sites, consist of geometrical arrangements of red lines, usually in patterns forming vertical stripes several feet high. After making her painting, a girl was again free to eat meat and salt. The paintings were called '*yunish*.'

"At one period, apparently at the beginning of the ceremony, the girls ate tobacco. Several small balls of this, it is said without admixture of any other substance, were swallowed by them, after which they drank hot water. If they retained the tobacco they were said to be good; but if they vomited it, they were regarded as bad."⁴

"From behind the bushes where he had been concealed, the *Gommer* Brupin now suddenly emerged dancing, bearing in one hand a short wooden club and in the other a piece of wood about eight inches long and chisel-shaped at the end. Being the representative of *Daramulun*, he was clothed only in a complete suit of charcoal dust.

"The boy's eyes being covered, he danced into the space between them and the masked men to excited shouts of

⁴ Rust, Horatio N., *A Puberty Ceremony of the Mission Indians*. American Anthropologist, New Series, Vol. 8, No. 1 (January-March, 1906), with a supplementary note by A. L. Kroeber; pp. 28 ff. (Cited by Case, C. M., *Outlines of Introductory Sociology*, Harcourt Brace and Co., New York, 1924.)

Wirri, to which the other men were also dancing, and thus approached the first boy. He now handed his implements to the man nearest to him, and seizing the boy's head with his hands, applied his lower incisor to the left upper incisor of the boy, and forcibly pressed it upwards. He then, dancing all the time, placed the chisel on the tooth and struck a blow with the mallet. This time the tooth was loosened, and I could see blood. Some of the dancing-men now came between the boy and me, so that I lost count of the blows for a few seconds. However, I counted seven, and I think that there was at least one more. The tooth then fell out of its socket, and Brupin gave it to one of the old men. The boy was then led aside by the *Kabo*, who told him that he must on no account spit out the blood, but swallow it, otherwise the wound would not heal. The stoical indifference shown by this boy, to what must have been an exquisitely painful operation, was most surprising. I watched him carefully, and he could not have shown less feeling had he been a block of wood. But as he was led away I noticed that the muscles of his legs quivered in an extraordinary manner."⁵

In some cases the ordeals are even more severe than the tooth ceremony. Young initiates may be forced to lie motionless on an ant hill while red ants cover them. In yet others the test takes the form of severe lashings, under which boys sometimes die. In most cases, however, the brief period of instruction and the initiation ceremonies over, no further probationary period is required.⁶

In colonial times no such primitive conditions endured,

⁵ From Howitt, A. W., *The Native Tribes of South-east Australia*, pp. 541-542. By permission of The Macmillan Company, publishers.

⁶ As Hollingworth (Hollingworth, L. S., *The Psychology of the Adolescent*, D. Appleton Co., New York, 1928) and others have suggested, present-day society follows a similar process in regard to the presentation of the girl to her group. The *débutante*, with ceremonies for the "coming-out party," is following, at a much more mature age, the customs of primitive peoples. The ceremonies which used to take place on the twenty-first birthday of the boy are similar in their origin and intent, inasmuch as the twenty-first birthday marks the time at which civilized peoples expect him to take his place among the men of the group.

but early marriage, that is the possibility of taking one's place as an adult of the group, was common. Marriages of girls of fourteen and fifteen were to be expected, and twenty marked the period at which any woman considered herself an old maid.

Under the patriarchal system, the possibility of young marriages was great, inasmuch as the younger members of the family participated in the industry, frequently agriculture, in which the older members were engaged, and were protected and partially supported by these older members.

There was no long period, except in rare instances, between the onset of puberty and acceptance into adulthood. At the present time adolescence has been prolonged and marriage put off to the twenties or even the early thirties. The adolescent who might once have been expected to have ideas and opinions of his own, to govern himself, and perhaps his children, is now kept in a state approximating late childhood. A large proportion of such adolescents are not even in the earning period, but on the contrary are financially dependent during the high school, college, and even a postgraduate period. Nothing in the early history of the race has prepared for this period of semi-childhood—semi-adulthood. This has been produced purely by social conditions and has no basis in the physical, physiological, or mental make-up of the individual from fourteen to twenty.

Further complications are added by the new trend in the family attitude toward the adolescent, for he is regarded, during the first three years of adolescence at least, as an object for teasing and jest rather than as a seriously considered member of the family. This jesting

attitude, as Hollingworth⁷ states, is expressed by the terms applied to a child of this period—in the South, “jellybean,” throughout the United States, “flapper,” a word derived or carried over from a poultry farm where this term is applied to young chicks not fully feathered, “gawk,” “greenhorn,” and the like. At no period is this jesting more disturbing than during adolescence. Whatever the reaction of the adult to him, the adolescent feels himself grown and able to take his place in an adult world. Ridicule not only makes him develop inferiorities from which he must escape in one way or another, but it also sets him at odds with the rules and regulations set up by those who have ridiculed him.

The age of independence has already brought with it revolt against adult domination, a phase entirely necessary if children are to break away from too strong home domination and to function as independent individuals. This revolt would have been unnecessary in primitive tribes and in earlier civilizations. Again new sex drives and the desire for social prestige and service to society, developed throughout the history of the race, conflict with the rules of society developed during this and the preceding decades.

Nor does modern education prepare as does that of the primitive peoples for the multitudinous reactions necessary to social adjustment. Complicated as is our educational system throughout the kindergarten and primary period, it prepares very little for the peculiar social adjustments necessary in late childhood and still less for those necessary at adolescence. By contrast preparation for late childhood and adolescence was in early times and among primitive peoples relatively simple. A Samoan

⁷ *Op. cit.*, p. 1.

girl must know how to grate and season coconut meat, to cook fish laced in a palm leaf, to stuff and cook a pig, judging correctly when the meat has reached the proper stage for eating. She must know how to make tapa cloth, to strip bark for weaving and to weave mats of varying degrees of fineness, to make platters of leaves, to make fans and various other woven articles. Baby tending she has learned from actual experience, since young children take care of those only slightly younger than themselves. Only at adolescence are they released from this heavy task. Fishing is learned after the baby-tending era is over.⁸

Education for the boy of the same age is a more complicated affair, inasmuch as it involves more skills and a greater knowledge of social relations. In Samoa the series of activities which surround the meetings of the common council, greetings to men of higher rank, and so on, are very detailed. The Samoan orator, before he comes to a point in a discussion before the council, must compliment each member and his ancestors in a fitting speech. To do otherwise would be to be considered lower than we would consider a boor. Such skills and knowledge as are necessary to enable him to take his place in the common council, to go through the complicated and stereotyped procedures necessary for a talking chief or a Samoan orator, are gained through play in the early years of childhood, and through observation, imitation, and direct instruction in the later ones.

The prolongation of the adolescent period, the complexity of reactions for which the older child needs education, and the attitude of adults toward the present-day

⁸ Mead, Margaret, *Coming of Age in Samoa*, William Morrow and Co., New York, 1928, pp. 26 ff.

adolescent, all lead to conflicts. The average adult reacts as if these were the problems of adolescence itself. On the contrary, these conflicts have no basis in the physical or mental make-up of the adolescent, but are the direct result of his social milieu. Particularly is this true in the fields of authority and the sex drives.

Problems in regard to respect for law as laid down by adults, and respect for adulthood as the source of all wisdom and authority, have developed. Coming as we have from the patriarchal period in which adulthood alone was enough of a basis upon which to demand respect, it comes as rather a shock that this respect is not automatically given. The experiential basis for adult judgments is not clear to the adolescent. Skill which the adult has at his command is not obvious except in a case of outstanding citizens or individuals who have had such close contact with their children that their particular skills and abilities are apparent to them. In primitive civilizations the skills which command respect are obvious ones. It is not at all unusual, authorities tell us, to see many children gathered about the potter watching his skillful manipulation of the clay, or young people in their teens held spellbound by the description of a hunt or by watching the processes which go into the making of arrowheads. Respect does not have to be demanded. It is secured by the sheer difference in skill between the watcher and the teller of tales or the maker of objects.

Obedience, which comes as a result of respect or fear, is easily secured through both of these channels. The child of primitive peoples is surrounded by tabus which come as a result of the experience of the total group and are respected by the total group. These have not only

the sanction of the group but are often also made stronger by ghost fear, since in many tribes the tabus are the result of ancestral pronouncement, and supernatural as well as natural punishment is supposed to fall upon their non-observance.

Not only does the individual passing through late childhood and adolescence in modern times lack any such ghost fear, but there are exceedingly few tabus enforced by society as a whole. What is tabu to one older member of the family may be actually approved by another member of the same family. What may be demanded of a child as good social behavior by his own family may be frowned upon by the family no farther away than next door. Respect must stand upon performance alone, and obedience is gained through this respect. These facts are as difficult of comprehension by present-day adults as the obedience secured by ghost fear and tribal tabus was easy of comprehension by the primitive peoples.

The age of independence, which is a growth stage reached between nine and twelve years of age, that is, the age at which the child questions all authority and must have logical reasons for behaving in one way rather than another, cannot be met as it was in early times and in primitive tribes. It must be prepared for by a long period during which the child learns obedience to reasonable demands, a sense of responsibility, and a respect for those adults to whom respect is due.

The number and kind of conflicts which come with the age of independence are legion. To these are added somewhat later those conflicts and difficulties which arise in connection with sex drives, the actual functioning of which is delayed in our social structure for a period of a decade or more beyond the time at which they arise.

The delay in functioning produces numberless problems. Adequate social contact is necessary in order that the child may have social expression. Information as to sex which will guard the child against too early expression and prepare him for expression at a later date, a thing entirely unnecessary under primitive conditions, is now required. Adequate outlets for the energy which would ordinarily have gone into sex expression must be provided in the form of athletics, hobbies of some sort or another, and the like. The period of idealistic dreaming in regard to the choice of the life mate is prolonged, and the books, plays, and motion pictures with which the adolescent has contact must have regard for this. The adult's attitude in regard to sex as a normal adolescent interest must be an enlightened one.

A final field in which knowledge is necessary is the number and kind of physical changes through which the adolescent must pass before maturity. Physical changes begin long before pubescence and continue throughout adolescence. The final result of these changes is such as to produce an individual in whom the secondary sex characteristics are fully developed, but they are noted fully only during the latter part of this period. It is not these changes which produce difficulties in adjustment; they merely represent one of the growth stages which occur throughout the child's development. It is the lack of understanding of these changes and the lack of preparation for them which cause emotional disturbance and maladjustment.

The problems presented by adolescence have been given more or less fully in order that the reader may understand that a knowledge of historical development, present and early folk ways, and the physical, mental, and

social make-up of the adolescent is necessary for an understanding of adolescent behavior in society today. Such problems as we have, as has been said, are rather the result of the pressure of society on the adolescent than a result of adolescence itself. A child in this period must be understood in the light of all these facts as well as in the light of the characteristics which he has as a result of his immediate ancestry and of the habits which he has developed.

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Chapter II

PHYSICAL CHANGES IN ADOLESCENCE

FOR some years past, investigation has yielded much data on the physical changes which occur during late childhood and adolescence. These data are significant both because the changes in glandular function produce the secondary sex characteristics and because glandular secretions and the general physical changes which accompany them have a profound effect upon behavior.

INCREASE IN HEIGHT AND WEIGHT

Height. The data on increase in height have been obtained largely from the researches of Baldwin and Woods, Byer, Boas, Hitchcock and Hall, and the recent report of C. B. Davenport. They have been obtained by the two methods in use in determining increase in mental age as well as height, weight, head ratio, and other anthropological measurements, that is, through measurements of a cross section of the population at each age, and measurements of the same individuals from year to year.

Inasmuch as these measurements have been compiled largely from studies of groups, certain otherwise obvious phenomena have been covered up. It has been stated, for example, that there is no sudden increase in height at adolescence, or immediately preceding that period, but that increase in height goes on steadily from year to year.

The examination of individual records shows this to be

an erroneous statement.¹ When data are massed, individual spurts in growth preceded by a period of reduced velocity are covered up by the group average, because these spurts do not come at exactly the same age for each child. It is not unusual, if individual records are to be trusted, to find an increase of six inches in a two-year period.² In fact, such increases occasionally occur within a period of eighteen months. Davenport states in summing up the general trends in growth from the pre-adolescent through the adolescent period:

"One notes that, in the male, the velocity of growth in stature diminishes from birth to ten and a half years; then rises slowly to eleven and a half; rather more rapidly to twelve and a half years; and still more rapidly to a maximum at fourteen and a half years. The velocity thereafter falls rapidly to twenty-one years.

"In the female, the velocity of growth in stature also declines from birth to eight and a half years at a rate almost the same as in the males; but the velocity curve never sinks so low as in the male; shows no deep slump corresponding to that of the male at ten and a half years; and reaches a maximum at twelve and a half years. It then diminishes rapidly to eighteen years."

. . . "Study of the individual curves of growth in fifty boys measured annually, or more frequently, for five to seven years, reveals another result of interest. The depression in the male stature velocity curve at ten and a half years and the flattening of the weight velocity curve at nine to eleven years are due to a marked decrease in the curve of velocity of growth that is usually of only a few months' duration. It may occur at nine years or later but most commonly from ten to twelve. My data are from boys whose development is retarded a year or so. The summation of all these periods of relatively slow increment is

¹ The Proceedings of the Conference on Adolescence, Cleveland, Ohio, Committee on Child Development, National Research Council and the Brush Foundation.

² Records in the Laboratory of Child Development, University of Cincinnati.

responsible for the flattening of the average curve of velocity at nine to ten years which is one of the causes of the first decussation. In some cases the alternation of spurts and slumps is greatly exaggerated.”³

The average increase from seven years of age through the adolescent period is shown in the facing table. Children tall before adolescence tend to be taller than average at adulthood, while short children tend to be short at adulthood.

There appears, therefore, to be a definite relation between height before adolescence and height at the end of the growing period, but this relation is not constant. Individual growth records again show an occasional case where a child has been average in height up to adolescence and has then increased in height in more than the expected ratio.

The effect of a rapid increase in height taken together with the adolescent ratio of increase in muscle tissue makes for muscular incoordination. The effect of this on behavior will be discussed in connection with muscular changes at adolescence.

Weight. Increases in weight do not show as clear a progress as height. Whereas it is possible within rough limits to predict the curve in increase of height on the basis of the earlier curve in height, weight increases cannot be so easily predicted.⁴ Moreover, the increase in weight appears to have a more definite relation to age. Weight increases rapidly between the ages of nine and fifteen for girls. The increase for boys is most rapid between nine and seventeen. Within these limits the in-

³ Proceedings of the Conference on Child Development, pp. 9, 11.

⁴ Baldwin and Stecher, *Psychology of the Pre-school Child*, D. Appleton and Co., New York, 1924, pp. 37-39.

PART OF BALDWIN-WOOD WEIGHT-HEIGHT-AGE TABLE FOR BOYS, AGES SEVEN TO NINETEEN YEARS⁵

Height in In.	Chronological Age in Years													Height in In.
	7	8	9	10	11	12	13	14	15	16	17	18	19	
	Weight in Pounds ⁶													
38														38
39														39
40														40
41	38													41
42	39	39												42
43	41	41												43
44	44	44												44
45	46	46	46											45
46	48	48	48											46
47	50	50	50	50										47
48	53	53	53	53										48
49	55	55	55	55	55									49
50	58	58	58	58	58	58								50
51	61	61	61	61	61	61	61							51
52	63	64	64	64	64	64	64	64						52
53	66	67	67	67	67	67	68	68						53
54		70	70	70	70	70	71	71	72					54
55		72	72	73	73	74	74	74	74					55
56		75	76	77	77	77	78	78	80					56
57			79	80	81	81	82	83	83					57
58			83	84	84	85	85	86	87					58
59				87	88	89	89	90	90	90				59
60				91	92	92	93	94	95	96				60
61					95	96	97	99	100	103	106			61
62					100	101	102	103	104	107	111	116		62
63					105	106	107	108	110	113	118	123	127	63
64						109	111	113	115	117	121	126	130	64
65							114	117	118	120	122	127	131	65
66								119	122	125	128	132	136	66
67								124	128	130	134	136	139	67
68									134	134	137	141	143	68
69									137	139	143	146	149	69
70									143	144	145	148	151	70
71									148	150	151	152	154	71
72										153	155	156	158	72
73										157	160	162	164	73
74										160	164	168	170	74

Ages—Years.....		7	8	9	10	11	12	13	14	15	16	17	18	19
Average height (inches)	Short.....	45	47	49	51	53	54	56	58	60	62	64	65	65
	Medium..	48	50	52	54	56	58	60	63	65	67	68	69	69
	Tall.....	51	53	55	57	59	61	64	67	70	72	72	73	73
Average annual gain (lbs.)	Short.....	4	5	5	5	4	8	9	11	14	13	7	3	
	Medium..	5	6	6	6	7	9	11	15	11	8	4	3	
	Tall.....	7	7	7	7	8	12	16	11	9	7	3	4	

⁵ Reprinted by permission of the American Child Health Association, New York.

⁶ These figures represent central tendencies only. Individual children may vary from these averages by several pounds without being over or under weight.

crease may take place at different periods. On the average the gain in weight for girls is greatest between the ages of eleven to fifteen, while that for boys is greatest between fourteen and sixteen. The actual gain for boys is greater than the actual gain for girls. Brooks⁷ states that each year's gain should be expressed in terms of percentage of the weight at the beginning of the year to express the year's gain as a ratio of the total weight at the beginning of the year. When this is done, it shows that the greatest increases frequently occur a year or two earlier for girls than for boys. According to this author, weight tends to increase throughout all of the adolescent period, but the increase in weight occurs at a slow rate beyond the teens. The ratio of adult weight to that at birth is approximately twenty to one.

Glandular dysfunction, which occasionally occurs about the onset of puberty, makes individual cases either gain or lose at an unusual rate, depending on which glands show endocrine imbalance.

Skeletal Changes. The long bones thicken and elongate during pubescence, and there is a change in the bony structure of the face. Whereas the facial structure may have previously somewhat resembled that of the maternal side of the family, it may now change and take the form of the paternal side. Less marked changes in facial contour are common. According to Hellman, during late childhood the facial mask makes a readjustment in position. There is a "sort of forward migration of the entire facial mask." The component structures grow backward gradually. The facial migration is accentuated par-

⁷ Brooks, F. D., *Psychology of Adolescence*, Houghton Mifflin Co., Boston, 1929, p. 25.

ticularly in the mandible and in the maxilla. The facial angles change in opposite direction to the growth of the face. As the face increases in dimension the angles tend to become more and more acute. The face lengthens faster than it increases in width.⁸ Moreover, the facial shape takes on those secondary sex characters which differentiate so clearly between the male and female of the Caucasian race. There is a great change in the proportion of head to trunk and trunk to legs and arms. The head attains nine-tenths of its size by the age of six. Were the head size of an adult to be in proportion to his head size in childhood, he would appear hydrocephalic. Head size in terms of girth and length is practically completed by the age of seventeen.

In addition to changes in bony structure, there is marked increase in length of the long bones of the legs and in size of the hands and feet. At maturity the legs are approximately five times as long as at birth. Here the rate of growth is more rapid at adolescence than in the two or three years immediately preceding. Such sex differences as occur approximate those indicated in the discussion on height.

The trunk does not increase in proportion to the legs and arms. In infancy the trunk is long and the legs and arms short. Where this stature persists, we have a prolongation of an infantile form. The trunk at six and seven years of age is approximately double the length and width that it was at birth, but in the next six years the trunk increases only half as much as it did during the preceding six.

⁸ The Proceedings of the Conference on Adolescence, Cleveland, Ohio, p. 31.

There is a great increase in the length and width of the chest and in the depth. Its greatest increase appears to be in length with width next. Brooks states that the curves for growth of the chest are similar to those for height, and that they resemble even more closely those for weight.⁹

The bony structure undergoes other changes in addition to the increase in length and thickness of the long bones. At adolescence most of the bony tissue has been calcified. The area between the epiphysis and the bone shaft has now lessened to such a degree that the uncalcified area near the epiphyseal line is hardly present. According to Prescott and others,¹⁰ the changes in the state of the cartilaginous area and the eruption of the teeth¹¹ are excellent indications of the anatomical age of the child. Anatomical age shows a clearer relation to the onset of puberty than does mental age or any other physical measurement we have today. According to some authors, anatomical age as measured by the calcification of the long bones and the eruption of the teeth is a better index of mental maturity than mental tests themselves, a point of view with which other writers are not wholly in accord.¹² The viewpoint in regard to the significance of anatomical age for school placement has changed in

⁹ Brooks, F. D., *op. cit.*, p. 28.

¹⁰ Prescott, D. A., *The Determination of Anatomical Age in School Children and Its Relation to Mental Development*, Studies in Educational Psychology and Educational Measurement, Harvard University Press, Cambridge, 1923.

¹¹ Bean, R. B., *The Eruption of the Teeth as a Physiological Standard for Testing Development*. Pedagogical Seminary, Vol. 21, 1914, pp. 596-614.

¹² Prescott, D. A., *op. cit.*

Lowell and Woodrow, *Some Data on Anatomical Age and Its Relation to Intelligence*. Pedagogical Seminary, March 1922, Vol. 29, pp. 1-15.

Matiegka, Jindrich, *L'Age Dentaire comme Signe du Developpement Total*. Revue Anthropologique, Vol. 31, 1921, pp. 258-260, 333-335.

recent years. Anatomical age is now considered much less important than mental age and social maturity.

There appears to be a distinct difference between the rate at which girls and boys mature anatomically as the following table shows.

SEX DIFFERENCES IN ANATOMICAL AGE AS MEASURED BY
OSSIFICATION OF THE WRIST BONES¹³

Girl's age	Anatomically equivalent boy's age	Difference
1 yr. 6 mos.	2 yrs. 0 mos.	6 mos.
2 yrs. 6 mos.	3 yrs. 3 mos.	9 mos.
3 yrs. 6 mos.	4 yrs. 3 mos.	9 mos.
4 yrs. 9 mos.	5 yrs. 9 mos.	12 mos.
6 yrs. 3 mos.	7 yrs. 3 mos.	12 mos.
7 yrs. 6 mos.	9 yrs. 0 mos.	18 mos.
8 yrs. 6 mos.	10 yrs. 0 mos.	18 mos.
10 yrs. 3 mos.	12 yrs. 9 mos.	30 mos.
12 yrs. 6 mos.	15 yrs. 0 mos.	30 mos.

The figures indicate that the boy would have to be two years and no months old in order to reach the same anatomical age as the girl of one year and six months. Pre-adolescent boys mature anatomically at a much slower rate than do adolescent girls. By twelve years of age the disparity between the two sexes is marked.

The difference between anatomical age in girls and boys at pubescence has been variously interpreted, but as yet there is no clear indication as to true significance of sex differences in this regard. It is one of the phenomena upon which light can be thrown only by further research.

Increase in Muscle Tissue. Increase in actual circum-

¹³ Woodrow, H., *Brightness and Dullness in Children*, J. B. Lippincott Co., Philadelphia, 1919, p. 112.

ference of the parts of the body is noticeable at adolescence. This increase is due to two types of tissue, adipose, particularly in girls, and muscle tissue proper. A simple table compiled from the figures of Muhlman and others shows the relation of muscular tissue to the rest of the body structure from infancy to adulthood.

INCREASE IN MUSCLE TISSUE IN BOYS

Age	Per cent of total body weight
Birth.....	23.4
8 years.....	27.2
15 years.....	32.6
16 years.....	44.2
20 years.....	45.0

The most noticeable change in ratio occurs between the twelfth and fifteenth years in girls, and, as shown above, at the fifteenth to sixteenth year in boys.

Increase in height, weight, and muscle tissue involves many practical questions, particularly as to its effect on behavior. The proportional rate of increase of the various parts of the body may be very different. As a matter of fact, it is characteristic particularly at adolescence that few if any of the parts grow at the same rate.

The integrative processes are going on, but the neuromuscular system does not yet operate as a coordinated whole. The development of the neuromuscular patterns at adolescence is marked. The peculiar awkwardness so often noticed at adolescence is due to the slow development of neuromuscular patterns, and therefore temporary incoordination, and to the fact that disproportionate growth of muscles and bones frequently occurs. This produces discrepancies between the child's picture of himself as a socially successful individual and his performance, and results in much misunderstanding on the

part of adults. Bodily control, the coordination of muscles, may take several years to acquire, and in the meantime the adolescent is many times subject to the embarrassment produced by lack of control of feet and hands and other parts of the body. This incoordination results in certain motor phenomena resembling habit tics. He moves about constantly while in a sitting position, develops habits such as twisting buttons, sliding ties, and so on, which appear to be the result of lack of consideration for adults, but which are merely the result of sudden or unequal growth without increase in coordinated neuromuscular patterns. As control develops repose accompanies it.

Some of our leading psychiatrists have said that adolescence is forgotten quickly because many of its experiences are so painful. There is little doubt that adolescent awkwardness produces many of these painful experiences which would not occur were the changes in the adolescent body met with understanding, not with ridicule. The tendency to ridicule awkwardness merely increases both the number and kind of situations in which it occurs.

Physical changes at adolescence bring up other practical problems, specifically those of fatigue and those of bad posture, by which fatigue is usually accompanied. Particularly in the tall adolescent one finds a tendency to a fatigue stoop. In tall adolescents this is due partly to the desire not to appear tall, and partly to actual fatigue which frequently follows rapid increase in height. The extent to which fatigue posture should be corrected must be determined by further research, but it is probable that adequate exercise, rest, and food, together with sound mental hygiene in regard to the attitude towards height, would do away with much of this all too common phe-

nomenon. Fatigue as indicated by the fatigue posture appears to be noticeable in adolescence, but the extent to which it occurs is again not thoroughly determined.

The Circulatory System. Just as there is an increase in the long bones and in the size of the other parts of the body, there is an increase in the size of the heart and in the length and thickness of the walls of the blood vessels. Beginning with birth, there is a relatively rapid change in the size of the heart. At six the child's heart weighs approximately four to five times what it did at birth. At twelve it weighs roughly seven times as much. At seventeen to eighteen, the heart size has increased to about twelve times what it was at birth. The relation of the total volume of heart muscle to the total body length increases markedly during adolescence. In fact, the increase is approximately twice as fast as it was before the onset of puberty. In early childhood the heart is small, and the veins and arteries large; at adolescence this ratio is reversed. The increase in blood pressure which appears at adolescence is probably brought about by the changed ratio of heart size to blood vessels and to changes in composition of the blood at present not clearly determined. The contractile fibers of the heart increase in number and the other fibers appear to increase in size. The strength of the heart beat also increases.

The amount and kind of exercise which would secure the coordination of the muscular system and which at the same time would avoid strain on the heart are a matter of individual difference. It is certain that long continued and strenuous exercise should not be undertaken during this period. A young boy known to the writer came home three evenings in succession after hav-

ing played basketball for two hours. On each day extreme exhaustion was indicated by the facial expression and color of the youth, but no attempt had been made by the gymnasium authorities to decrease this amount of exercise, or even to secure adequate rest during the two hours of play. Valvular disease developed probably as a result of this strain.

Enlargement of the heart due to over-exercise may and frequently does take place during this period. A carefully planned regime of exercise and rest is more necessary at this age than at any previous time. It has been the custom to insist on a carefully supervised schedule for the pre-school child and to leave relatively unsupervised the schedule of the adolescent. As a matter of fact, supervision of the schedule during this period is as important as during the period of infancy and early childhood.

The Digestive System. During adolescence there is a distinct change in the structure of the stomach. It becomes more tubular and increases in capacity. The digestive rate has been reported by some authorities as higher and by others as lower. The basal metabolism in boys is approximately twenty-five per cent higher at puberty than it was in earlier childhood.

Not only is there a difference in the shape of the stomach, but there appears to be a slight variation in its function. The appetite may be large at times and at other times poor or finicky. There appears to be a peculiar craving for sweets and for sour foods. The unusual kinds and mixtures of food which adolescents appear to enjoy and the frequency of eating between meals may be said to be characteristic of this age.

The adolescent needs a well-balanced diet and a larger amount of food than in previous years. In a number of

cases in which a well-selected diet high in energy-making foods has been given adolescents, the peculiarities in eating have decreased.

GLANDULAR CHANGES AT ADOLESCENCE

Sex Glands; Ovaries. The female sex glands produce two types of hormones, follicular and corpus luteum. Research has already demonstrated that such changes as take place at adolescence are in the main due to the functioning of these sex glands. During the pre-pubertal stage, though the girl is neutral in regard to sex activity, there are changes which show that certain sex hormones are operative. Notably, the pelvic bones begin to approach adult form before puberty. According to Evans, the germ cells of the infant, the sex of which has already been set by the constitution of the chromosomes, affect the somatic cells early, probably, if not certainly, in the embryonic period. If castration were carried out early enough, a neutral form would always result, that is, "a single sex-undifferentiated form which would be characteristic of the species."¹⁴ It is highly probable that there are a number of sensations arising from the functioning of these hormones of which children are conscious but find difficult to localize and explain. Certain variations in the pattern of sex behavior before puberty may be the result of hypo- or hyper-gonad function. As soon as puberty begins the changes are obvious.

Where there is ovarian deficiency the secondary sex characteristics fail to develop fully, or may fail to appear, if one may draw conclusions from removal of

¹⁴ Evans, H. M., *The Rhythm of Gonadal Function, with Special Reference to the Relations between Uterus and Ovary*, in *Endocrinology and Metabolism*, Ed. Barker, Hoskins, and Mosenthal, Vol. 2, D. Appleton and Co., New York, 1922, pp. 573-599.

ovaries in young animals. Hoskins¹⁵ cites Roberts as saying that in India there are records of young girls deprived of their ovaries, and that the result seems to be increase in height, infantile condition of the genitals and breast, and no development of the pubic or axillary hair. He also states that there is a probability that the epiphys-eal junctures remain un-united until the late adult period. According to the research of Rowe¹⁶ on individuals deprived of their ovaries in adulthood, there is a reduction of the basal metabolic rate, some reduction in body temperature and blood pressure, and a decrease in galactose tolerance. Perhaps one of the most important results of Rowe's study is the conclusion that hypogonadism produces a variation in personality: "Hyper-emotionalism and self-pity are united with an attitude of acid criticism of environmental conditions that are always unsatisfactory."¹⁶

Recent researches indicate that injection of the follicular and corpus luteum hormones produces much the same effect as when the secretions are made by the gonads themselves.

Sex Glands; The Testes. As with the ovaries, it is probable that there is a somatic effect from the hormones produced from these glands long before pubescence. The effect of a lack of this secretion in male development is well known. The psychic and somatic changes characteristic of adolescent development fail to take place, though the individual suffering from lack of hormones produced by these glands continues to grow to adult size and frequently to more than average obesity. The exact results

¹⁵ Hoskins and Wheelon, *Ovarian Extirpation and Vasomotor Irritability*, American Journal of Physiology, Vol. 35, 1914, p. 119 ff.

¹⁶ Rowe, A. W., and Lawrence, C. H., *The Male and Female Gonads*, Endocrinology, 1928, Vol. 12, pp. 591-662.

of plantings of this gland are as yet unknown, but administration of the secretion from it produces much the same effect as the secretion made within the body.

The Suprarenals. Although much has been written in regard to the effect of suprarenals on growth in the pubertal period, little is actually known as to the effect of this gland acting without others. Complete adrenal deficiency results in bronzing of the skin, lowering of the body temperature, weakening of the heart beat and pulse, and in the lowering of the blood pressure. The muscles are weakened and digestion is disturbed. In animals, the removal of the adrenal glands is followed almost immediately by death; in humans, gradual destruction of the tissues produces a disease called Addison's disease, the result of which is invariably death.

The adrenal glands secrete two types of hormones, one called cortin secreted by the cortical cells, the other secreted by the medulla and called epinephrine. Cortin appears to be the hormone essential to life. The symptoms listed as characteristic of Addison's disease yield to intravenous injection of this hormone. It may also be administered by mouth but with less effect. Because of its generally stimulative effect the suggestion has been made by several investigators that cortin may possibly be beneficial in all cases of individuals who are "under par" from any cause, but this use is still open to question.¹⁷

When the adrenal cortex becomes over-active from any cause whatsoever, there is a tendency for both males and females to take on more masculine characteristics. Where pathological conditions cause over-stimulation in the late

¹⁷ Hoskins, R. G., *The Tides of Life*, W. W. Norton & Co., New York, 1933, p. 47 ff.

pre-school period or indeed in any period preceding the normal age for pubescence, the secondary sex characteristics develop. Cases of individuals fully matured sexually in the late pre-school period have been cited by several investigators. One sometimes finds them as side show exhibits.¹⁸ The secretions from the medulla of the adrenal gland produces the changes brought about during strong emotional states, the changes noted by Cannon in his "emergency theory."¹⁹

The effect of adrenal gland secretion on behavior is well known, particularly as to the part which it plays in the emotions. During anger and fear states, adrenin is thrown into the blood stream with the resulting effects of release of glycogen by the liver, stimulation of the muscles, and changes in secretions and body activity. There appears to be much more effect of suprarenal function on the female than on the male.

According to the results of Hammett, the adrenals may act as a weak integrating mechanism among the other glands. The interrelations are more prominent between the adrenal and the other endocrines than is the relation between the endocrine system as a whole and any other one of its component parts.²⁰

Thyroid and Parathyroid. While in general these glands function in the second decade as in the first, in females there sometimes appears to be an increase in thyroid functioning during the period of pubescence. Frequent cases of dysfunction occur. Glandular enlargement is sometimes so marked as to be visible to the

¹⁸ Hoskins, R. G., *op. cit.*, p. 59 ff.

¹⁹ Cannon, W. B., *Bodily Changes in Pain, Hunger, Fear, Rage.*

²⁰ Hammett, F. S., *A Biometrical Study of the Size Inter-relationships of the Glands of Internal Secretion*, Journal of Metabolic Research, 1925-1926, Vols. 7 and 8, pp. 91-163.

naked eye. Where hyperthyroid functioning occurs, it produces increase in heart rate, heightened blood pressure, increase in rate of breathing, high energy drive often coupled with over excitability, flushing of the skin, increased perspiration, and in general a decrease in body fat.

The relation of this gland to emotional disturbances is still not clearly known, but there appears to be a distinct relation between hyperthyroidism and emotional tension.

The absence of thyroid secretion, or a decreased functioning of this gland, produces delay in the development of the generative organs, increase in fatty tissue, mental lethargy or an actual slowing down of the mental processes, thinning of the hair, increased pallor and a peculiar dry condition of the skin. Complete absence of thyroid secretion causes mental arrest or actual deterioration even when this occurs at adolescence.

The parathyroids, two small masses of tissue resembling in shape and size a grain of wheat, appear to affect the lime content of the body. Absence of parathyroid secretion in animals produces tetanus, or an extreme convulsive response to stimuli.

The relation between adolescent tensions and endocrine imbalance needs further research, but that such relation exists is highly probable.

The Pituitary Gland. The specific effect of the pituitary on growth and maturation at adolescence has not been wholly shown. It has been observed, however, that pituitary dysfunction produces dwarfism and some degree of retardation in sexual development. Secondary sex characteristics develop poorly if at all. Mental development may be entirely normal. Individuals suffering under such

dysfunction frequently age prematurely. Where pituitary deficiency develops at puberty, normality and infantilism appear in a peculiarly mixed condition. The height may increase, but the proportions of the skeleton remain infantile. There is a feminine contour in the male. Other skeletal conditions include unusual delicacy of the bones and persistence of the epiphyseal line. Overweight and peculiar distribution of the fat is also present. In certain cases the pituitary affects the sex glands, causing the growth phenomenon "stork legs" with a correspondingly short trunk. Since these hormones may influence different sections of the body and function in different proportions in these sections, large hands, very much out-of-proportion feet, and so on, result. Height acquired at adolescence is supposedly due to the growth-accelerating action of the hormones of the anterior lobe of the pituitary body.

The Pineal Gland. The effect of the pineal gland secretion has not yet been determined exactly. According to some authorities, the hormones produced by this body prolong the period before adolescence. Delayed maturity in the white race has been cited as partially due to the hormones produced by the pineal body. Certain it is that pineal extirpation in chickens has produced acceleration of body growth and abnormally rapid maturation of the sex organs. In a few cases where a tumor has been present in the pineal body in humans, there has been acceleration in the growth and maturation of the sex organs and in the development of secondary sex characters.

The effect of the physical changes at adolescence upon behavior will be discussed at length in the succeeding chapters.

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Chapter III

INSTINCTIVE TENDENCIES AT ADOLESCENCE

FOR many years there has been discussion as to the nature of instinctive tendencies. In fact, there have even been questions as to whether such tendencies exist. One point of view regards the instinct as a mysterious, unmodifiable entity which functions throughout life. The other extreme considers instinctive tendencies to be a few activities or behavior patterns present at birth, highly modifiable and governing behavior very little beyond early infancy. The writer takes the middle ground, namely that there are apparently throughout life drives toward certain types of behavior rather than others. These drives are general rather than specific tendencies to behavior. At adolescence and beyond any unlearned elements are so obscured by acquired patterns that it is difficult if not impossible to differentiate between what is native and what is acquired. Certain of these tendencies appear to operate more strongly at adolescence than at any other period, while still others operate strongly before six years of age and again at adolescence.

The Tendency to Self-Assertion. The general tendency to self-assertion may be seen in its four aspects in adolescence as well as in the pre-school period: (1) the desire for power over objects and situations; (2) the desire for power over people; (3) defense reactions against objects and situations; (4) defense reactions against persons.

There is throughout life a desire on the part of individuals to conquer. At no time is this desire more powerful than during the adolescent period, when the individual becomes a member of a social group in which he feels he must excel if possible. In order so to excel, he must demonstrate his ability to measure up to the standards set by the group and to control the situations in which the group finds itself. He who can best plan a trip to the country, be the property man in a drama, excel at basketball, baseball, or other games, achieves a position of dominance in any group in which he may find himself.

The desire to compete, which is the desire for power over both persons and things, is probably stronger at adolescence than at any other preceding period. The desire for power over objects and situations finds its normal outlet through adolescent activities such as group games, dramatics and the like. It is an interesting phenomenon that power over school subjects has not been to date a usual desire on the part of adolescents, though it too could be equally well the outlet for the desire for power. There is no reason theoretically why excelling in school subjects should not place the boy or girl in the same relation to his group as does excellence in group games, that is, make of him a real leader; but tradition has for some reason given the position of hero to the star in athletics and the name of "grind" or some equally undesirable appellation to the individual who is outstanding in academic subjects alone. It is the relatively unusual individual who secures leadership in both academic work and athletics.

The same desire for power is seen in the adolescent competition against standards of form and athletic records. The adolescent boy or girl willingly practices hours

in order to attain good form in swimming even when no prize is given. They compete against records for the high jump, the broad jump, the dash of various lengths with the same intensity as they compete against persons. The desire for skill which begins at about the ninth year of life is now reaching its height.

The desire for power over persons takes much the same form that it did during the pre-school period. The adolescent wishes to have individuals fall in line with his plans. He will work endlessly on committees in order to have the sense of power which comes with feeling that the other members of the committee are working together with him to carry out a common project, just as the child of four years will work with his group to build a see-saw or a road of planks. The satisfaction comes as much from the fact that he is dominating the group as it does from the result.

The same phase of this instinctive drive that shows itself in the desire to be the center of attention and the cause of excitement in the middle and late pre-school period appears again at adolescence in as marked a form as it appeared in the earlier stage. The adolescent will do anything to gain the attention of parents or friends. If this attention cannot be gained by ordinary methods, he will work and plan until he has succeeded in arriving at what constitutes one of the main objects of adolescent life.

A fifteen-year-old boy sulked at the table at dinner each night until his mother and father confessed that he was "driving them wild." Both of them tried with all of their resources to persuade him to be more cheerful. In fact, the first twenty minutes to half an hour of dinner was given over to this persuasion. Finally in desperation

over what they considered to be a pathological state in their child, they consulted a psychiatrist who shortly demonstrated to them the fact that the sulking on the part of the boy was solely an effort to make his parents attempt to keep him cheerful. The psychiatrist suggested that attention be given away from meals but not during the sulking. This shortly resulted in the disappearance of the unpleasant attitude at meal times.

One sixteen-year-old brought home and parked in front of the dignified home of his hyper-dignified parent a 1925 Ford painted bright purple. With this in front of the house, the youth marched in and sat down to wait for developments. His mother, a very wise woman, said nothing and his father cooperated with her. At the end of the third day, the boy said to his mother, "What do you think of the new car in front of the house?" to which she replied, "I don't know, son, I think it's rather pretty. It reminds me of spring." He said, "Aren't you really going to fuss about it? Then I guess I had better have it painted black," and there was no further difficulty.

These are rather simple instances of the desire on the part of the adolescent to get attention from his family. There are countless instances of his desire to get attention from the teachers in school and from the members of his own group.

In a high school recently, the teacher left the room for a long distance telephone call. When she returned the shades were down, the boys all had their coats on inside out and were holding their books upside down. It was obvious that this was done solely to provoke the storm which, unfortunately, followed. Had no attention been paid this would have been sufficient punishment, for all of the trouble to which the class had gone would

have been wasted. Unfortunately, this teacher gave the class exactly what it wished and they have been busy ever since trying to think of other ways to provoke the same storm of excitement. The loud voices and "monkey-shines" which one sees in adolescent groups on street cars, the extraordinarily loud ties and socks, the slavish following of style to its extremes are all evidence of the same trend.

So concerned is the adolescent not only with securing attention, but with the attention which he believes is being secured, that he is constantly on the alert to see that his family conform to all of the standards which he as an adolescent feels essential for them.

A sixteen-year-old girl who lived in a very warm climate insisted that her mother wear a coat down town on a fall afternoon when the temperature was ninety because "coats were always worn shopping in the fall." The child had read this statement in some fashion magazine and wished her parent to conform to it no matter what the effect on the parent.

That the adolescent likes to be the center of attention is again evidenced in his desire for dramatic expression. There is hardly a time when he is not willing and anxious to stage a show in which he is the leading character.

The desire for power over persons and things should be given every possible outlet in as much as it is normal and natural. If the child does not have the opportunity to succeed in his desire to have power over individuals, objects and situations, insecurity results and he must escape from reality by means of those mechanisms discussed in a later chapter. He must identify himself with a picture of a more successful individual than he is, project his attitudes on objects and persons, compensate in

some way for his failure or make use of any of the other mechanisms which make it unnecessary for him to be a success in his real contacts.

Normal development of this generalized desire is expressed in desire for attention from persons one loves. As in other drives, the aim of the adolescent is to secure generalized response and of the adult to secure a specific one.

Defense Reactions. Against individuals who block him in any way, the adolescent reacts with defenses which will enable him to carry on his purposes and plans without further blocking. Because of this, discipline at adolescence must be largely in the nature of self government if it is to be successful, for against an authority which is too compelling, the adolescent reacts with resistances so violent that he may transfer these resistances entirely from the individual who stirred them up to all authority. Adolescents who have been subject to too stern control tend in later life to react against such obviously necessary regulations as those governing traffic and the laws of the city, state, and nation, as before they have reacted against college and fraternity rules. These become so maladjusted that they must be constantly in a state of resistance and are no more successful in the business world than they are in the world of social adjustments.

One such insisted upon driving his car on the wrong side of the road with the result that there were two serious wrecks. This same adolescent was in such a violent state of resistance to all the rulings of the schools in which he was placed that he was expelled from three institutions. He had done nothing really serious, but he would not obey anything which he considered to be a command or direction.

In his home, even the most normal adolescent resists domination. He will live under rules and regulations which he has had a part in making, but unless he is unusually submissive or has an unusual amount of confidence in his parents, he will cooperate very little with rules and regulations which he has not helped to make and which he does not feel to be based on sound reasoning. Self government in high schools, in boys' and girls' camps and the like is now a commonplace. This has grown out of the adolescent dislike of domination in which he has no part.

There is adequate reason why there should be this resistance against authority on the part of the adolescent. If one traces the customs of the primitive tribes one finds that at adolescence the individual breaks away from adult domination and is placed in the adult group as one now concerned with the administration of the rules and regulations which govern the group of children from which he has just come.

As has been pointed out, in primitive tribes and in earlier civilizations, there is little that can be called an adolescent problem since adolescence is a point, not a period. But in modern civilization during this transition period the adolescent is treated as a dependent child while at the same time he is expected to show adult behavior. This makes almost inevitable a conflict between the necessary restrictions of a complex civilization and defense reactions against control.

If situations are so complex that they cannot be conquered, and if other individuals are so dominating that there is no chance for the adolescent to protect himself, he must break or resort to the escape mechanisms. These escape mechanisms are always called into play in the

presence of insecurity for which there are no techniques that may be used as a defense or to enable the individual to secure power over the situation. The presence of so many escape and defense mechanisms at adolescence is to be explained partly on the basis of insecurity because of the disparity between the child's ability and his desire for power over persons and things. He adopts them to defend himself against objects, situations, and persons and to escape the consequences of faulty techniques which make such defense or the securing of such power impossible.

The individual who reaches adolescence without adequate training in social behavior finds himself at an impasse, with his instinctive drives to power over objects and persons crudely conditioned on the one hand, and the need for techniques which constitute power over persons and things on the other.

The drive for self-assertion at the pre-school level is clearly an effort to exercise "power over," and represents the beginnings of conscious control in social situations. If during later childhood and pre-adolescence the child is guided toward a wholesome expression of independence combined with a growing sense of inter-dependence, he will tend to pass into adolescence with techniques for achieving power with his social group and with a measure of appreciation of the importance of "give and take" relationships with others.

If group techniques have not been developed during childhood, the adolescent is likely to experience more profound conflicts and insecurities and to run the risk of reaching adult years with inadequately developed social patterns.

Techniques which will give the adolescent power over

objects, persons and situations, particularly those which are concerned with group behavior, should be an essential part of the training of each child as he nears this period. The desire of the adolescent to read books of etiquette is only one expression of his desire for techniques which will give him power over social situations and which will protect him from feeling inadequate in new social situations.

Sex. The two strongest instinctive drives at adolescence appear to be self-assertion and sex. With the development of the glands whose hormones produce the secondary sex characters, and with the maturing of the reproductive organs, here develops increased interest in sex in all its phases. In the late pre-adolescent period and the early adolescent period the child is interested in knowing the facts about sex activities and sex attitudes which he will need as an adjusted adult in a social community. It is not in the least unusual to have adolescents look up the meaning of all words which they consider to be of a sex nature, neither is it unusual for them to acquire information from any source no matter how inaccurate. Teachers and parents are often upset by the fact that adolescents write notes of a sex nature to each other, in which they play with ideas which surround sex. Apparently the less the information provided, the more there is obscene writing and interest in obscene literature. It is well where such interest is shown in the type of correspondence going on between children in a school to have adequate instructions given by individuals with a clear knowledge of sex in all of its phases.

The developing sex drives are now integrated with the emotion love, but these still may not have their expression in the adolescents as separate phases, a condition

which ideally should not occur. It is desirable that sex expression should wait until the individual is in love with a desirable life mate. 3

One finds instances of expression which do not follow the expected pattern. As Hollingworth¹ has pointed out, individuals other than those of the opposite sex may be the recipient of the love emotion. Wherever blocking occurs, sex activity may be expressed in relation to individuals not of the opposite sex. This blocking of the sex drive from objects natural to its expression may be due to fixation at infantile levels. It may also be due to lack of sufficient contacts with individuals of the opposite sex. Hollingworth points out that in schools which are not co-educational there may not be a sufficient number of such contacts, and crushes of a rather serious nature develop. It has already been pointed out that such crushes are a growth stage except where they occur in an extreme form or persist too long. The individual may, however, remain in the crush stage both in regard to sex activity and in regard to emotional level, if adequate stimuli of other sorts are not provided. Similarly the individual, blocked in normal sex expression, may concentrate both emotion and sex expression upon himself and indulge in auto-erotic practices. (See Chapters VI and VII.)

As has been stated, fixation at an infantile level, shame and disgust attached to sex activities, and lack of adequate social contacts are a few of the causes of blocking. Fortunately such cases are relatively rare, but preventive measures are indicated by the cause.

Adequate sex education which regards sex activity after marriage as natural, and which gives the adolescent

¹Hollingworth, L. S., *Psychology of the Adolescent*, D. Appleton and Co., New York, 1928, pp. 115 ff.

a sufficiently full background of information to enable him to interpret the place of sex in human life, is the right of every growing child. Adequate social contacts are also his right.

Sex expression under adverse conditions may result in the same blocking as occurs in the situations described above. Like many other conditioned reflexes, disgust may easily be attached which will result in inhibition. Such inhibitions which arise from disgust attached to sex expression at early adolescence under adverse conditions may carry through life. Too much care cannot be exercised to prevent the occurrence of such experiences.

There is a wide individual variation in the intensity of the functioning of instinctive tendencies connected with sex. In some individuals these are so strong that they are restrained only through substitution and sublimation; whereas in others at the other extreme of the distribution, the drives associated with sex are so slight that they function fully only after marriage. It is probable in this field as in others that individual differences follow the normal distribution curve.

At the same time that the adolescent sex instinct is maturing there appears to be developing a somewhat different emotional slant which we call parental. This is a combination of sex drive and a tendency to take care of younger children and animals which is so well exemplified in the behavior of children from the pre-school period on. For a brief time and in certain individuals there appears to be very little interest in young children, but for a while at least this is so apparent that classes which involve care of young children are not only suitable for

this period but present material strongly desired by the adolescents themselves.

Gregariousness. The desire of the adolescent for social life is one of the most obvious developments in his behavior. He has already in the pre-adolescent period given strong evidence of his desire to be in gangs and groups, now come sororities and fraternities. He desires to become a member of a team, a member of a fraternity or club. He belongs to some variation of the earlier well-formed gang with its own rules and regulations. In addition to these smaller groups, he appears to desire to get into larger groups as represented by attendance at football games, baseball games, and the like. He wears his school colors, cheers with his class and would feel cheated were he not allowed to go to dances, games, and the like in large groups.

If the adolescent wishes to be alone and not to associate with groups, his adjustment is not adequate. There are points at which his social contacts need help and these should be discovered early.

Gregariousness, like other instinctive drives, appears in different strength in different individuals, but all individuals in the adolescent period need social contacts. They need a group against which to project themselves and in which to function as a part of organized social activities.

Play. The desire for play activity is present in the adolescent. It ranges all the way from horse-play and roughhousing with individuals to membership in the team. As in the early period, part of the play life at least should depend upon individual initiative and the acquisition of skill. It should come out of the child's own needs and desires, not as a result of factors introduced by adults who think they know what the adolescent needs.

Membership in a team gives a valuable outlet for the instinctive tendency to play. From it are derived many social activities of a highly desirable nature. Sacrifice of self to the team's needs is an excellent check on the desire for power which would lead the individual to use his skill for his own ends rather than for those of the group. Obedience to the rules of the game is another check on the too strong instinctive tendency to self-assertion. Adequate exercise under supervision, a chance to be the center of attention while cooperating with the group, and wholesome outlets for energies which might otherwise be misdirected, are only a few of the values derived from group games. Baseball is one of those games peculiarly adapted to the adolescent make-up. As a batter, he may be highly individualistic and stand in a position of power. At the same time, in other positions on the team, he may have to sacrifice acclaim for himself in order to gain success for the group as a whole.

Play of all sorts may be made into constructive experience not only in the field of athletic development, but as working toward sound character development as well.

Leadership which will function later in life may be learned. Fair play and all of the other ideals of sportsmanship, as important in life as they are in games, may also be acquired through group games. Nothing is more important for the adolescent to learn than to play the game by the rules, fairly and with true sportsmanship.

Play of all sorts is necessary during this period. With the drive to self-assertion at its height, all forms of anti-social behavior may develop unless socially desirable outlets and checks to which the adolescent himself desires to submit are found. Moreover games and pursuits requiring skill will probably be necessary to the indi-

vidual throughout life. The golfer, the fisherman, the amateur carpenter, the collector, the bridge player are all, though widely differing, illustrations of the operation of the drive to play, and to forms of play requiring skill and operating under "the rules of the game."

The Tendency to Do as Others Do. The tendency to do as others do is particularly strong during the adolescent period. It is this tendency which makes the child fit into the group as a member who does what the group does, thinks what the group thinks, wears what the group wears. His almost slavish imitation is noted in the fact that even the slang phrases which are current in his group he must use. If his friends wear a particular type of suit no matter how uncomfortable, the adolescent who belongs to this group will wear this also. All that is needed to make a book popular is to have the group leader read it. This slavish imitation finds its parallel in the tendency of the child among primitive people to follow absolutely the rules, laws and tabus of the tribe. In fact, the instruction which precedes initiation at adolescence is one in such rules, laws and regulations.

It is only when the adolescent feels that he cannot get attention in other ways that he breaks away from group domination and does the opposite of what the group expects. Ordinarily, he excels by doing what the group does and carrying this to extremes rather than by breaking away from the group pattern. If one boy wears a suit pinched in at the waist, his followers will tend to wear a suit increasingly so tailored. If one adolescent wears a loud tie, these will be worn with increasing complexity and brilliancy of pattern by other members of the group. If one stays out late, the others will tend to stay out later and later. Adults fail in their understanding of the ado-

lescent when they do not realize the strength of this tendency to do as others do.

The Tendency to Become Uncomfortable at the Sight of Suffering. The tendency to become uncomfortable at the sight of suffering is antagonistic to many phases of the tendency to self-assertion. Physical combat which results in actual hurt is not uncommon in adolescence. There is also often present the tendency to manage or bully individuals who are somewhat younger. The adolescent in a family with younger children will often attempt to dominate them in every way, even if this results in suffering. He also teases to the point of tears. At the same time, the adolescent may be devoted to a child in the pre-school period, a child between whose age and his own there is a stretch of many years. So strong is the desire for domination that probably the adolescent should not remain in control over younger children unless there is no one older and wiser who may exercise this control.

In later adolescence the tendency to take care of weaker and younger things develops fully into a sense of responsibility for those individuals in the community who are less experienced and less fortunate than the adolescent himself. He gives to the Community Chest, takes part in social movements or even goes into social work so that his whole life may be devoted to the protection of things younger, weaker, less fortunate than himself. The desire to give one's self for the social group is so strong in many adolescents that it must be checked by wise guidance. (See Chapters VI and VII.)

Religious conversion accompanied by a desire to be a missionary, intense patriotism accompanied by the desire to give one's life for one's country are expressions of this

tendency in combination with other tendencies present in adolescence.²

In treating all of the instinctive tendencies listed, it must be remembered that these tendencies are not specific in early childhood and that they have usually become even more general by adolescence. They are tendencies to behavior rather than specific reactions to specific situations. By adolescence so many habitual patterns have been built up on the basis of these predispositions which we term instinctive tendencies that it is literally impossible to differentiate between what is hereditary and what is the result of environmental conditions. Certain drives exist and we may see these exemplified in the behavior of the pre-school child, the pre-adolescent, the adolescent and the adult, but the exact extent to which they function in human behavior must always be problematical.

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² See Chapters VI and VII.

Chapter IV

EMOTIONAL LIFE AT ADOLESCENCE

AN EMOTIONAL state may be defined as a response to external or internal stimuli involving widespread bodily changes, the sensations which give a background against which the object or mental process causing the emotional state projects itself. In contrast to the bodily changes which are constantly going on, the sensations from which are reaching consciousness in a steady stream, an emotional state may be differentiated by the magnitude of the disturbance. We feel comfort because the visceral organs are functioning rhythmically and at a normal rate. We meet each experience whether new or previously experienced, colored by this feeling of comfort. On the other hand, when the visceral organs are disturbed in their functioning, a general sense of discomfort pervades consciousness, and experiences are projected against and are interpreted in the light of this disturbance.

The Autonomic Nervous System. The changes which produce emotional states are directly under the control of the autonomic nervous system. This system consists of two bands of ganglia lying on each side of the central nervous system and connected with it at each level. These bands of ganglia function not as a whole but in three divisions, the cranial, the sympathetic and the sacral division. The cranial and sacral divisions may work independently, or they may work together. They may work as

a whole or in part. The middle division, the sympathetic, always works as a whole. The cranial and sacral divisions operate in opposition to the sympathetic. What the cranial dilates, the sympathetic contracts. What the cranial and sacral accelerate, the sympathetic slows down. For example, the churning movements of the stomach operating under the control of the cranial system go on rhythmically or may be slightly increased. When the sympathetic is in operation, the churning movement of the stomach ceases.

In states of strong excitement and in fear and anger states the sympathetic system causes the following changes to take place in a greater or less degree depending upon the intensity of the stimulus. The adrenal gland is activated causing a discharge of adrenalin into the blood. The action of this hormone is twofold. There is a heightening of the excitability of the skeletal muscles, and the hormone operates directly upon the liver causing a discharge of glycogen into the blood. Glycogen provides additional food for the muscles and together with the heightened excitability insures greater muscular strength and postponement of fatigue states. The heart rate is accelerated, the blood vessels in the abdomen contract and force the blood to the skeletal system. There is a dilation of the arterioles in the lungs, effecting increased oxidation of the blood.

Changes occur throughout the length of the digestive tract. The salivary gland secretion is inhibited and one often has the experience of such dryness of the mouth that control of the tongue is diminished.¹ The glands

¹ Cannon, W. B., *Bodily Changes in Pain, Hunger, Fear, and Rage*, D. Appleton and Co., New York, 1929.

in the stomach not only cease to secrete the digestive ferments to the normal extent, but they appear to produce in their stead a mucoid substance which is slightly toxic in nature. There is a cessation of the churning movements of the stomach and of the peristaltic action of the intestines. The impulses sent to the intestinal tract may result in the diarrhea of fear or in a complete inability to move the food through the intestinal tract. If food has been taken just previous to the anger or fear state, a sensation of heaviness in the abdomen results, the sensation arising largely because the churning has ceased and the digestive processes are not progressing.

Fear and anger appear to have come originally from the same root. The physiological changes as mentioned above are characteristic of both emotions. The chief difference between bodily manifestations in fear and anger appear to lie in the skeletal set. In fear the whole bodily attitude appears to be that of running away from, shrinking back, withdrawing from or escaping from objects of which we are afraid. In anger, the tendency is to go toward and attack. We approach and overcome, if possible, those things which have caused anger whether they be human or material objects. We withdraw or escape entirely from those things human or material which arouse fear or its milder manifestation, insecurity.

The milder emotions and what used to be in older psychologies termed "affective tone," pleasantness or unpleasantness, are under the control of the cranial and sacral divisions. Mild joy and happiness are also manifestations of their operation. The sacral division controls all of the emotional states which produce love and which are connected with the manifestation of the sex instinct except that there appears to be some control of

sex excitement from the sympathetic.² As has been stated, the cranial and sacral divisions may be operative in part without necessarily activating all of the organs controlled by them. The sympathetic division always acts as a whole. When the cranial and sacral are operative, the sympathetic is inhibited. Similarly, when the sympathetic is operative, the cranial and sacral divisions are inhibited.

Conditioning fear and anger states always involve bringing into play the cranial and sacral divisions of the autonomic system. Authors state that fears may be reconditioned by "attaching pleasant associations to the feared object." We have already noted that pleasant feeling tone is the result of the functioning of the cranial and sacral divisions. The old statement, "Love driveth away fear," is probably based on this antithetic functioning of the segments of the autonomic system.

Changes in fear and anger states with increasing maturity. Except in pathological states or under conditions not usually present in complex civilizations, fear and anger show their clearest manifestations in early childhood. With increasing maturity the bodily changes tend to decrease in proportion as ideational content increases. Fear as it shows itself in early childhood is rarely present. It is at adolescence more often a general sense of insecurity. It may appear, however, in all of its phases, mild insecurity, grief, depression and worry. Grief, worry, and depression contain a large proportion of ideational content and are accompanied by slight bodily

² We have here an interesting phenomenon which will be a fruitful field for research. Until we have such research, the apparent contradiction in statements with regard to the antithetic functioning of the cranial-sacral segments and the sympathetic divisions as mutually inhibiting will have to remain. It is probable that when excitement is strong it may supersede and be followed by other emotions.

changes; whereas, fear itself is largely a matter of marked visceral change in the manner described earlier.

By the time that adolescence has been reached the original stimuli to fear and anger have been so modified by conditioning that it is impossible to trace the early patterns.

It is only recently that we have learned that few if any fears are hereditary, and that violent tempers and the stimuli to them are largely the result of conditioning. Education has functioned so largely that at adolescence original stimuli to fear and anger have often entirely passed away while a number of new ones have taken their place. The original responses have also been highly modified.

In place of the original withdrawals or overt escape, many adolescents have substituted the escape mechanisms which will be discussed at length later. In anger, defense has developed both in terms of the mechanisms and in terms of verbal response rather than hand to hand combat. Only when anger is at its height and the cause is one socially approved by the group to which the adolescent belongs, does combat take place. Verbal disputes are common and it is here that the habit of quick repartee seems to develop as the mode of social response. Because of the seriousness of this type of behavior in the production of mal-adjustments, care should be taken that the verbal responses that take the place of blows should be relatively few in number and should be attached only to socially approved situations.

Since anger results in the generation of added energy and seems in its milder forms to aid in conquering obstacles, it is probably an emotion necessary to human adjustment even under the most highly civilized con-

ditions. An individual without the possibility of anger would probably be too suggestible and essentially unable to meet and conquer difficult situations.

Complex Emotional States: A list of the emotions which are present in adolescence would appear to be as Warren states if one wishes a highly complex picture.

HUMAN EMOTIONS³

1. Expressive (Nutritive)	—Anger (Passion)
Emotion	—Hatred
+Joy (Enthusiasm)	—Envy
—Grief (Despair)	+Pride
—Shock	+Exultation
+Mirth	
+Ecstasy	5. Social
Restiveness	Emotion
Exuberance	+Affection
+Wonder	+Cordiality
	—Pity
2. Reproductive	+Gratitude
Emotion	+Admiration
+Love	—Detestation
+Lust	—Revenge
—Jealousy	—Suspicion
—Coyness	—Scorn
+Tenderness	
3. Defensive	6. With Temporal Projection
Emotion	Retrospective Reference:
—Fear	—Regret (Remorse)
—Disgust	+Satisfaction (Elation)
—Timidity (Embarrassment)	Surprise
—Shame	Prospective Reference:
+Awe	+Hope
	—Dread
4. Aggressive	Anxiety
Emotion	

³ Warren, Howard C., *Human Psychology*, Houghton Mifflin Co., Boston, 1919, p. 299.

It is rather more common to reduce the number to the following:

1. The anger series as represented by the range from irritation through vexation, fury, anger, and rage.
2. The fear series, insecurity, worry, nervousness, embarrassment, anxiety, dread, regret, grief, jealousy, fear, and terror.
3. Excitement.
4. Love (including sex).
5. The complex emotions such as sympathy, awe, and reverence.

Such emotions as wonder, awe, admiration, and regret are largely ideational and are probably accompanied by not very profound bodily changes. In fact, the ideational content may be so great that the emotional state is highly attenuated. It is probably these considerations among others that have led to a shortening of the long list of emotional states originally accompanying discussions of "the emotions." All emotional states are derived from the three primary emotions, love, anger, and fear, and it is to these in their manifestations at adolescence that we shall largely confine our discussion.

Emotional tension at adolescence appears to be high. Probably this is due in part to the function of the endocrine glands which has changed markedly with the introduction of the hormones from the gonads. It is highly probable that changes in the hormones from the gonads have produced a difference in adrenal gland function, and that since the adrenal gland seems to have so great a relation to the emotions, an unusual tension is the result. This is all the more probable since there appears to be a

fundamental relation between adrenal gland secretion and the development of the secondary sex characters.

Insecurity is essentially fear in a generalized form and without the more profound changes found in pure fear states. The individual insecurity in adolescence may be studied both from the overt behavior of the adolescent and from such reports of introspections as we now have. Insecurity is produced by the lack of development of the neuromuscular patterns which give adequate muscular control, by the inadequate knowledge of social relations which the adult possesses, and by the fact that the emotion, love, now has a somewhat different connotation. The emotion love and the sex drives amalgamate at adolescence,⁴ whereas previous to this time they appear to be developing in parallel lines.⁵

The insecurity produced by these three factors may well be considered in interpreting the behavior of the adolescent boy or girl. It must not be understood that insecurity develops only at adolescence. It may be present at any stage, but except where training has produced a sense of security through the development of techniques and the assurance by the parents of their confidence in the child, insecurity at adolescence reaches such a height that the escape mechanisms may be increased far beyond the normal point. The child may escape from a too insecure world by day dreaming, by projection, by compensating, or by means of any other of those mechanisms which follow as a result of inability to face reality. Since the total social behavior of the adolescent must be in terms of a real world, the use of

⁴ For further discussion see Chapters VI, and VII.

⁵ Arlitt, Ada Hart, *The Psychology of Infancy and Early Childhood*, McGraw-Hill Book Co., New York, 1930.

these mechanisms as adjustments presents a serious problem.

The writer has in mind a case of a sixteen-year-old boy whose family insisted that he become a lawyer. The boy's interest was in color and design and his ambition was to become an interior decorator. His tastes and no small talent were made ridiculous by his family. They assured him that he was a sissy and that never in their family before had they had such a silly boy. His father looked up stories about sissy boys, clipped them from the newspaper and put them in front of his plate at breakfast. The result was that before long the boy showed poor and even failing work in school and began to withdraw from the companionship of other boys of his age. He became morbidly sensitive about the color of his ties and socks, worried constantly about whether his walk was manly enough. He hesitated to speak for fear that his voice would not come up to normal, manly standards. Only the quick action on the part of a psychiatrist who was a friend of the family prevented a complete escape into a day dream world in which the boy imagined himself a great decorator for whom kings sent.

It cannot be emphasized enough that the adolescent must feel himself a responsible member of his family on whom the family depends and whose opinion is of value. If he has no set place within his home, he tends again to develop a sense of insecurity because he feels himself of little value. For this insecurity he may compensate by bragging and boasting and by trying to force his opinion upon adults. He may compensate in ways that make him an extremely objectionable member of the household. The compensation is a symptom not of the

fact that he feels himself unusually good, but that he has become so insecure that he has to make for himself a picture that he can respect.

Of great importance, too, are the techniques which he will need to develop in order to feel secure in the social world of which he now feels himself so much a part. Heretofore, he has been a child with children. Now he feels himself an adult even though neither his appearance nor his behavior fully bear out this feeling. He should be allowed to purchase his own clothes under guidance if necessary, to manage his own allowance, to be responsible for his own behavior except in such crises as require adult consultation and help. It is an indication of a serious psychological state when either a boy or a girl insists upon direct guidance from an adult after the age of fourteen or fifteen years. There is a natural break made by the primitive tribes at adolescence and the individual under the rulings and tabus of the tribe becomes an adult, self initiating and self governing. As far as is possible in our complex civilization these conditions should be duplicated.

The adolescent needs a sense of independence while at the same time he should be able to go to an adult for consultation and to share his confidences. A combination of independence and the dependence which comes from a knowledge that adults have a wider experience and can give adequate counsel are both necessary. It is as absurd to assume that the adolescent wishes to throw over all that he can derive from adult experience as it is to assume that he wishes to begin always at the trial and error stage. The transition period between the time when the child feels that he is now grown up and can take his place in an adult world, and the time at

which he actually possesses adequate techniques to enable him to take this place, requires all the wisdom that can be brought to bear upon it. That adult companionship is necessary is shown by the number of adolescents who go to Scout masters, teachers and other older individuals to talk over their problems. Needless to say, no problem should ever be met with ridicule nor should one ever be considered less important by the adult than it is by the developing adolescent. In the world as it is today with its economic instability and its exceeding number of stimuli which require complicated responses, insecurity is more apt to develop than security. It is only by a constant study of the techniques which the child needs and assistance in gaining these and by a complete understanding and confidence in the child that one gives him the security necessary if he is to face and conquer real obstacles. Security must be subconscious as well as conscious. A superficial reassurance is wholly inadequate. Security is based upon acceptance by those one loves, sound knowledge, and adequate techniques.

SITUATIONS PRODUCING INSECURITY AND CONFLICT

There have been a number of studies as to specific situations which produce insecurity and conflict.⁶ Among these may be listed the following: disturbance in original standards for religious behavior or in religious teaching, inadequate psychological weaning which produces homesickness or other manifestations of over dependence; a disparity between the individual's picture of himself and the real self; doubt of the child's parentage; doubt as

⁶ See Healy, *The Individual Delinquent*; Groves, *Three Problem Children*; Narratives from a Child Guidance Clinic. Groves, E. R., *Personality and Social Adjustment*; Sayles, M. B., *The Problem Child at Home*; and Sayles and Nudd, *The Problem Child at School*.

to the honesty of the adults by whom he is surrounded, this dishonesty not being necessarily material but in the nature of failure to tell the truth and the like; unusually harsh treatment; injustice and failure to understand; unreasonable rules and demands; sex misinformation which results in wrong ideas in regard to the place of sex in the life of the growing child and the adult; the feeling that one is not accepted because of some physical defect; lack of social training and the like; poor discipline in early childhood which has resulted in inability to inhibit socially undesirable impulses.

Disturbance in Original Standards for Religious Behavior or in Religious Teaching. In all studies of primitive peoples one may see religion as a factor in producing security. In fact, it has been stated by many authorities that religion in some form no matter how simple is present among all human groups. It appears to be a necessary accompaniment of the life of social groups, and to be present particularly where conditions of life are difficult. In fact, at times of stress and strain, mankind turns to religion as the power which enables him to conquer otherwise unconquerable obstacles or enables him to stand otherwise unbearable strain. Adolescence is a period of strain. Where there is no stability in religious belief, the strain is increased many times. It is not uncommon to have a child taught religion in the way in which it would appeal to an individual in the pre-adolescent stage and to have no gradual growth in this religious teaching. The child nearing adulthood is unable to believe the material in the same form in which it was originally presented and therefore refuses or is unable to reorganize it for himself into an acceptable form. Many teachers consciously or unconsciously upset religious belief by the method of

teaching science or other school subjects. The adolescent is unable to make his own adjustments or to defend his own beliefs in the religious field and therefore cuts adrift from all religious contacts.

It is interesting to note that adolescence is the period of strong religious conversion or of reaction against all previously taught religious beliefs and ideas. Since religious belief appears to be so strong a factor in producing security, it would seem that both the school and the home should endeavor to inculcate religious belief in such a way that it may stand the strain of adolescent doubt and conflict.⁷

Inadequate Psychological Weaning Which Produces Homesickness or Other Manifestations of Over-Dependence. Psychological weaning is one of the problems of adolescence treated in succeeding chapters. It necessitates the development of techniques which will set the child free from a too strong home domination and a too great dependence on the adults who have brought him up and is so important as to make it one of the major problems of the growing child.⁸

A Disparity between the Individual's Picture of Himself and the Real Self. This type of behavior as producing conflict is described fully under the mechanism identification. The tendency of the individual to make a picture of himself is characteristic throughout the whole period of childhood, but it may become intensified at adolescence if the need for escape from reality has increased.

⁷ The present situation in Russia throws much light on the need for religious experience. A study of the reactions of the group to the confined mummy of Lenin is a case in point.

⁸ A full discussion of emotional maturing in its relation to psychological weaning at adolescence follows in Chapter VI.

Doubt of the Child's Parentage. Before he can feel himself secure in the wider world the adolescent needs first to feel himself secure in his place in the family circle. If there is doubt that he is a true member of this circle, he often approaches the larger circle with such a degree of insecurity as to make adequate adjustment difficult if not impossible. This is particularly true of the adopted child, whose place in the family must have been completely assured to him before he reaches adolescence. If the facts are first discovered during this period, the shock may be so great as to throw the child into direct opposition with the family which has reared him.⁹

Doubt as to the Honesty of Adults. The picture which the child has of adults in general and of the stability of the adult world has been built up slowly by the adults with whom he has been thrown in contact from his early childhood. Each new experience with adults has taught him whether these are stable individuals or whether they are individuals whose word is of little value and whose actions and speech belie each other. At no time does he need the sense of stability in adults so much as during the period in which he is facing the changing world of adolescence. He needs support from adults, but it is rare that he can be deceived for a long period, no matter how strong his need.

It has been said many times that the ideals with which adolescents meet the world are higher than those of adults, most of whom have been forced to some degree of compromise. It has also been said that somehow through teaching, the adolescent should be able to make

⁹ The effect of illegitimacy on behavior has already been discussed too fully by Healy and others to make a discussion of it necessary in this connection.

the contact between ideals not necessarily modified and the real world. How far this is true only research can determine, but it would appear to be a fact that there is far greater conflict between ideals and reality when the child has been deceived by adults or knows them to be untruthful and untrustworthy.

Some years ago Sanford Bell¹⁰ made a study of characteristics which adolescents most disliked. The qualities that most inspired dislike were as follows: absence of laughing and smiling, excessive scolding and "roasting," fondness for inflicting blows, indifference, malevolence, sarcasm, severity, sternness, suspicion, threats, broken vows, and unjust punishment. On the contrary, those that inspired trust and confidence and were most appreciated were absence of hypocrisy, arousing of ideals, athleticism and vigor, understanding, confidence, encouragement to overcome circumstances, giving of purpose, independence, inspiring self confidence and giving direction, kindling of ambition to be something or to do something and so giving an object in life, kindness, a little praise, personal beauty, personal sympathy and interest, purity, special help in lessons, stability and poise of character, and timely and kindly advice.

Though the research was conducted some time ago, these lists are significant in that they point to the need for trust in and understanding by the adults with whom the adolescent is surrounded.

Sex Misinformation. From approximately two to three years of age the child has been asking questions in regard to sex either of his family or of other individuals from whom information could be obtained. If sex has

¹⁰ Bell, Sanford, *A Study of the Teacher's Influence*, Pedagogical Seminary, December 1900, Vol. 7, pp. 492-525.

been explained in a way in which it may be comprehended at each age level and if the emotional tone has not been one of strain and embarrassment, the individual will rarely show conflicts in this field at adolescence. If the information has, however, been of such nature as to give him an upset attitude toward sex, the conflict between the needs arising from the developing sex organs and social attitudes and standards becomes at times almost unendurable. Feeling that sex drives are unworthy of him as a developing man, the child struggles with himself and becomes more and more insecure in his own eyes as his interest in sex increases.

The Feeling that One Is Not Accepted. Adolescents are peculiarly susceptible to criticism and show an unusual desire to be accepted by the group. Where they feel that they are less attractive than the average, or where they are conscious of some defect such as poor complexion, awkward build, lack of stature, poor voice, and the like, conflicts develop which often make the use of escape mechanisms necessary. Feeling that one is an unwanted child, or lacks social background or social techniques or has scandal in one's family are only a few of the other reasons for feeling that one may not be accepted. The child must feel himself accepted by his group and on a par with them. If physical defects or other reasons for insecurity are present, there must somewhere be compensating capacities if the adolescent is to adjust himself to the world of reality without developing anti-social habits, or habits of escaping from a world too difficult to face.

Lack of Social Training, and the Like. The feeling of inadequacy which comes from poor social training produces an effect similar to that produced by physical de-

fects. The child feels himself unacceptable to the group and unless techniques are acquired which will make him feel adequate, insecurity results which leads to the use of escape mechanisms in one form or another.

Poor Discipline in Early Childhood Which Has Resulted in Inability to Inhibit Socially Undesirable Impulses. The conflicts which arise here are in part overt and only in part mental. Society requires certain set restrictions on behavior which only the individual himself can place. Where these are lacking, there is constant conflict between the individual and his undisciplined impulses. The conflict results in failure to adjust to an ordered world, most of which is constructed on the basis of well-established tabus and restrictions.

Wherever there is conflict or insecurity present which the individual cannot face and react to overtly, escape and defense mechanisms appear which enable the individual either to withdraw from the situation gracefully, to face it as it is presented in a new way, or to defend himself from it.

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Chapter V

ADOLESCENT ESCAPE AND DEFENSE MECHANISMS

THE relation between the thinking process and overt response to emotional states has been discussed briefly in an earlier text,¹ but the specific relationships which exist at adolescence remain to be treated.

LEVELS OF THOUGHT²

It is a well known fact that consciousness exists in varying degrees of clearness. If one may use the older form of discussion made familiar by the writers of psychological texts, one may assume five levels of consciousness, each of which merges into the next imperceptibly: A clear focal point, the center of attention; a slightly dimmer outlying fringe which gives meaning to those things in the clear focal point; a third level, composed partly at least of partially realized previous experience which gives still fuller and larger meaning to material at the focal point, and produces those sensations largely organic in nature which make the general feeling tone. Here are experienced also such sensations as those when the light from the room in which we are sitting produces eyestrain or clear optical functioning, the pressure

¹ Arlitt, Ada Hart, *Psychology of Infancy and Early Childhood*, McGraw-Hill Book Co., New York, 1930.

² By this terminology is not meant any sectioning of the conscious field. It is used to imply varying degrees of clearness and ease of arousal.

of the chair in which we are sitting, or of clothing, the general quality of the air, and various other sensations from the external media. On the fourth level is material which may be aroused at any moment and which is now, so to say, on the tip of our tongues if we go in search of it. Material from this level may be brought to consciousness with varying degrees of effort. Here, for example, may be found the name of an individual whom we wish to bring to clear consciousness, but whose name may not be recalled until several hours later, partially forgotten telephone numbers, and all sorts of other material, none of which is saturated with a high emotional tone of such a nature as to block its easy re-arousal.

Below all of this fringe diminishing in clearness from the focal point of attention, there lies in the fifth level a great mass of material difficult if not impossible to re-arouse. The difficulty of re-arousal may be due to the fact that the material has not been memorized adequately, has not been experienced frequently, or with sufficient intensity. Material may remain in this outer fringe, which we will call for want of a better term, the sub-conscious mind, because it belongs so early in the history of the individual that it cannot be re-aroused.³

The difficulty in re-arousal may be due to fatigue or illness which cause a high degree of synaptic blocking. A final reason and the one which is most frequently assigned to material in the sub-conscious mind is the unwillingness on the part of the individual to face such material. Anything which has resulted in a feeling of insecurity

³ Experimental evidence indicates that few, if any, memories of experiences which occurred below the second year are recalled except with great difficulty. Such experiences, while they may influence conduct, nevertheless may not be brought to the focal consciousness except in rare instances.

may be so buried. Material of this type produces a high degree of emotional tension.

There is a series of mechanisms by means of which the individual may endure the situations or ideas which have produced the insecurity and yet feel secure. These mechanisms which enable the individual to escape from the true pictures⁴ buried in the sub-conscious are termed escape and defense mechanisms. A second group of drives to behavior slightly different in nature may be termed the partial trends.

THE ESCAPE MECHANISMS

Projection. Projection is the mechanism frequently used to escape from thoughts, ideas, or situations which would, if faced, make the individual insecure and therefore fearful. Projection may be of three types. The individual may project the fault upon someone else in order to withdraw from a situation unendurable because he had been at fault or has failed to accomplish a task. He places someone else as the agent or something else as the cause of his failure or his fault, and thus escapes the situation.

The boy or girl who leaves the tennis court after being beaten at the game may say, "I would have won this game had it not been that I had on the wrong kind of shoes," "I would have made a better score if the sun had not been in my eyes," or "I would have won had not my racket string broken," or some other such excuse. He withdraws from his failure by the process of placing the shoestring, the sun, the broken racket as the agent in-

⁴ It must be remembered that we also defend ourselves from unpleasant ideas and situations of which we are wholly conscious.

stead of his own lack of skill or the superior skill of the other player.

He may place someone as the person at fault, as for example, when he states that his failure to win has been due to an unfair referee, or to the fact that his mother has talked to him too much before he went on the court, or to the fact that his little brother stood at the sidelines and made faces at him.

Far from facing and analyzing his own fault or technique, he has now escaped from the entire situation because the fault is not his but that of some other person, event, or thing, the referee, his mother, his little brother.

It is probable that all normal individuals use the mechanism occasionally. It becomes serious only when it is the usual way of meeting situations. It is not a learning situation for where the fault has been projected on another person or thing the individual does not analyze his own faults and better his technique. It is at best an unsound adjustment and one which should be discouraged.

A third type of projection is one in which the individual, unable to bear his thoughts about himself, projects these thoughts on someone else and takes the position of accusing the person on whom these thoughts have been projected.

A boy who had cheated in school but had not been caught, accused his teacher of thinking that he was a cheater and caused an uproar at home by means of these accusations. Still another boy who had stolen from his mother insisted that the people who had passed on the street had spoken of him as a thief, though no one save himself knew that he was responsible for the disappearance of money from his mother's purse.

A rather usual and not in any way serious form of this

projection is found in the adolescent who, leaving home in a dress or suit which is not becoming, or which is too advanced in style, thinks that his friends are making comments to each other which he has made to himself in regard to his wearing apparel. Approaching a group which breaks out laughing, this individual assumes that the laughter is directed toward himself. In this form, the operation of the projection mechanism is responsible for a good deal of the embarrassment and misery present during adolescence.

Identification. A second form of escape is one in which the individual identifies himself with some person or persons often entirely dissimilar in nature. Identification is an extremely common form of escape. The individual undergoes the process of identification when he reads a book and suffers with the hero or heroine, goes to a motion picture and laughs with the comedian, suffers with the poorly-treated country youth whose bad manners got him in trouble, is thrilled by the last minute rescue of the maiden in distress. The adolescent whose behavior is often inexplicable may be simply identifying himself with an actor or actress with whom the family are unfamiliar.

A friend of the writer's who returned from a boarding school wore extraordinary clothes, used an accent which could not have been a product of the section in which the boarding school was located, and combed her hair in a style most startling. On being sympathetically quizzed, the girl stated that she was attempting to be like two motion picture actresses. The identification here was with two persons rather than with one, and the girl's portrait the more ridiculous because it was a cross between two widely divergent types.

Identification in early childhood is a commonplace.⁵ The pre-school child is the fireman, the milkman, the bear, the horse, the truck driver which his actions resemble. The delight in drama and in masquerade in later childhood are merely other expressions of the same mechanism. Identification enables the individual for the time at least to become someone else and thus to withdraw from his or her own life. It also makes possible the enhancement of one's personality. One identifies one's self with the material which one wishes to master, with one's college, one's fraternity, club, or order, with one's city, state, and nation.

Only in three forms does this mechanism tend to produce problems. (1) When the individual identifies himself with a picture far removed from his actual self or with a figure more important than he is in a similar field, the disparity between himself and the picture is so great as to produce strain or to make him ridiculous in the eyes of his comrades. (2) When the identification is of a loved object with a person of an age or family relationship which makes a normal love life difficult if not impossible. The person in later adolescence and early adulthood who carries too strongly the mother or father emotion may identify the life mate with mother or father and expect from that mate the mother or father relationship rather than the relations existing between emotionally adult individuals. The former is an identification with an earlier role and thus acts as a means of escape from an adult pattern. (3) When the identification with the characters in fiction provides a complete escape, the indi-

⁵ Here this mechanism is not usually employed for the purpose of escaping from a too harsh world. Though it may be so used it is far more often a phase of the instinctive drive to play activity.

vidual loses his contact with reality and wishes, instead of living in a real world, to live in the world of fiction, the motion picture, and the drama.

When the individual identifies himself with a picture removed from his own personality, the resultant disparity gives rise to constant conflict and a continued series of maladjustments. A young girl whose position in life was that of a secretary for which she had excellent capacities, kept always in mind a picture of herself as a great opera star. She reacted to the secretarial situation as an important personage would have. Dictation was beneath her notice to such an extent that on one occasion she failed entirely to make notes of the dictation of a chapter of a book on astronomy and herself wrote the chapter. She never appeared on time, and when she did appear, swept into the office as to the sound of trumpets and a handclap. Needless to say her picture of what a famous star will do and not do was false, and such as it was, made it entirely impossible for her to adjust.

A very unattractive fifteen year old held as a picture of herself a famous beauty whom everyone loved and for whom the world would grant every wish. So far was the picture from the reality that the child herself withdrew completely from actual contacts.

The least difficulty which may arise when the identification is with a picture not true to the person's real nature is insincerity and a failure to live up to those qualities of personality which the individual actually possesses. This tendency to represent an individual who one is not, is fairly common among adolescents in the early stages of their social adjustment. Fortunately, society tends to react to the actual individual rather than to the pictures which they try to present and so helps them

to face more nearly their own capacities and personality make-up.

Adults often encourage this mechanism in younger children by stating that the bad behavior which they have just witnessed on the part of the child must be someone else. They even go so far as to state, "That was not you who was here a little while ago. It must have been the bad little boy from next door." Such reactions make the child tend to picture himself as all good and his faults as the result of another person working within him.

The second type of identification which may cause difficulty is one which one frequently finds in the love life of late adolescence and adulthood where the individual makes a complete identification of the loved object with someone whom the loved object does not resemble. The young man who falls in love not with the person, but with his ideal which the person in no wise really resembles is identifying the loved object with an ideal picture in spite of the dissimilarities which actually exist between the two. It is escape from reality by endowing a person who has stimulated love behavior with the qualities of the love ideal.

A mother may fail in adequate love relation with her husband and identify the child with the love object to such an extent that the full force of her affection is projected upon him. A woman may have so firm a father fixation that she cannot escape from identifying the father image with her husband. These and many others illustrate the tendency for the identification to cause situations bound to end in difficulty of adjustment.

A third type of identification, escape through reading of fiction and through the drama and the motion picture, is again normal and useful, but when overstressed to such

an extent that contact with reality is practically lost, it becomes a serious problem. Many adolescents find in romantic fiction an escape from a too difficult world. Where the escape is for brief periods only, and the child contacts reality better after the escape, no harm results. Where fiction becomes so much more fascinating than life that the child avoids human contacts in order to read, prefers, for example, to stay home from a dance to read a story, it is probable that much effort will be needed to make reality so interesting that the child will wish to return to it.

In the well adjusted life of adolescence, there may be so many strong situations that life itself may become more interesting than fiction. Both extremes appear, those adolescents who will not read because of a vital interest in everything which goes on around them, and those who wish to read constantly because fiction is so much more satisfactory than life. The former is normal; the latter may result seriously.

Rationalization. Until the period just preceding adolescence children have felt themselves only to a slight degree responsible to the opinions and attitudes of adults. Beginning with the gang period, the child depends more and more on the approval of his fellows until at fourteen or fifteen years of age, social approval has become a necessity. With this as a drive, it is no wonder that the adolescent tends to substitute for his own motive which he does not wish to face, more socially desirable ones which will arouse praise rather than blame from his group. The high school girl who wishes to go to the dance in spite of the fact that her parents feel her to be too young, will say, "I do not care particularly about the

dance, but I am afraid that my friends' feelings will be hurt if I do not go."

The boy who wishes to go to the new motion picture with his gang rather than to study for his examinations, will say, "Of course, I want to pass my high school examinations with high grades, but I am stale from too much studying, and I feel that going to a movie will rest me so that I can do better work."

The adolescent is constantly attempting to put his best foot forward, and in the effort may develop a habit of rationalization difficult to break.

It is, of course, a well-known fact that rationalization may begin in the pre-school period, but with this escape mechanism as with others, the higher the social pressure, the more tendency is there for it to appear. Here, as with the pre-school child, every effort should be made to help the child to face his own motives. It may do little or no harm if he rationalizes, provided that he himself is aware of the rationalization. In fact, many adults rationalize to others while only to themselves do they admit their true motives.

Compensation. Adolescent insecurity due to an inferiority or a suspected inferiority in one field or another often results in a form of behavior termed compensation. The very short, lightly-built boy compensates for his small physical stature by walking with a strut, by speaking in a loud tone, by excelling in school work, or by becoming outstanding in some respect different from the one in which he feels inferior. He withdraws from the contact with the field in which he is inferior by excelling in a different one.

There are other forms of compensation which are less valuable socially than the ones just mentioned. In these

other forms, the individual may compensate for lack of success by tearing down or criticizing the success of others. He may compensate for his own inferiority in regard to popularity by a constant stream of criticism directed toward a more popular classmate. He may compensate for the times in which he has felt belittled by endless attempts to belittle others. The bully, the tease, the practical joker, the caustic wit are all compensating in one way or another for their own insecurity.

One part of the training of adolescents is in securing such forms of compensation as will be socially valuable and will adjust the individual without sacrificing others to his insecurity. Wherever the adolescent appears to gain his satisfaction from the destructive criticism of people, particularly of his own social group, society may note a potential condition which at any time may produce discord or worse.

Day Dreaming. Another form of escape is the day dream in which the individual imagines himself either as a conqueror or the reverse of this picture, as undergoing unusual sufferings peculiar to himself alone.

In the first type when his feelings have been hurt he thinks of the bitter things which he will say the next time he meets his enemy. He imagines himself coming back a successful author and greeting his erstwhile classmate or teacher scornfully. He imagines himself a great social success, an actor, the President of the United States, the sole purpose of the dramatization being that he may in his dreams show his superiority to the person who has made him feel insecure. Many of the dreams of adolescence are of this conquering hero type. Provided the child meets reality in general, such dreams have no ill effect. They serve, rather, to lessen tension. If he does not meet

his friends and take his own part, make his way by effort in actual situations, and conquer obstacles as these occur, but takes it all out in dreaming, his behavior may well turn into serious mental disturbance.

In the suffering hero type, the individual imagines himself getting back at those who have hurt his feelings by dying or some other form of suffering which will hurt others to contemplate more than it hurts him to undergo. He imagines his funeral with himself surrounded by his weeping family, all of whom wish they had not spoken to him in the way which has caused his death. While a little of the suffering hero form of day dreaming may do no harm whatever, and is in fact engaged in by practically all adolescents, much dreaming of this sort develops in the individual a form of martyr complex, and he feels himself imposed upon and his burdens too hard for one person to bear. It is again a form of escape from the real world and a way out of meeting and conquering the obstacles which a real world presents.

Displacement. In displacement the individual refuses to face or has been told not to face the real cause of his trouble, and he substitutes an entirely different cause for the emotion under which he is suffering. An adolescent who had been told that she must love her mother, a venomous, bitter woman, harsh in her treatment of a child whom she had not wanted in the first place, displaced her real feeling of dislike and accounted for her emotional tension on the basis that she was worried about her mother's health. The tension which actually existed arose from dislike of the parent. It was explained in terms of fear lest the parent be hurt, become ill, or die. Actually, these events were what the child wished.

Displacement may be diffuse in nature. When an indi-

vidual is actually suspicious of the honesty of a parent or of a beloved friend, unwilling to face the suspicion in relation to the actual object of it, the individual becomes suspicious of many other people while at the same time he remains unsuspicious, consequently, of the person in connection with whom the real suspicion was originally aroused.

Examples of displacement in ordinary life are not uncommon, but those which produce behavior problems are the ones with which great emotional stress and strain are connected.

THE PARTIAL TRENDS

The mechanisms are supplemented and affected to a certain extent by the partial trends. These partial trends may be differentiated from the mechanisms by the fact that they are paired attributes. Sadism and masochism, exhibitionism in its two forms, ambivalence which implies the swing from one pole to its opposite in emotion constitute these partial trends.

Sadism and Masochism. The sadistic and masochistic pair are operative from early childhood throughout life, but the extent to which they operate determines whether they shall produce behavior problems or whether they function adequately in the adjustment of the individual.

Sadism implies the desire to hurt, normal in early childhood and easily seen in the behavior of children of nursery school age. They may pull the wings from insects, tease the beloved cat or dog, scratch, bite, kick, or pinch a beloved playmate and in other ways inflict pain. They even appear to delight in the administering of psychological punishment. Anyone who has watched a child play with a doll will see that this object is spanked,

beaten over the head, thrown across the room in an attempt to punish it or to furnish an outlet for the child's own emotional tension. Generally a young child delights in giving up to and sometimes even in being hurt by beloved adults or other children.

These trends in the form of hurting and being hurt physically should disappear beyond the nursery school period and the trends take the form of desire to dominate and to be dominated by. When one sees in the adolescent a very unusual submissiveness or an unusual desire to hurt the individuals whom the adolescent loves, one has an exaggeration of these trends.

Masochism may show itself in the enjoyment of poor health, in delight in one's own martyrdom to conditions or people, in the enjoyment of a program which inevitably involves serious overwork. Where it shows itself in these ways, we have at least the beginning of a relatively serious social problem. Where the trend shows itself in the desire to work under rules, as for example those which govern a bridge game, a basketball game, the rules of the institution in which one works, the trend is normal and to be expected. It shows itself rather definitely in adolescence in a desire to abide by the rules of the game and to be dominated by the leader of one's group or gang.

Sadism shows itself in the desire to dominate, to heckle one's classmates or one's teacher, to bring tears to the eyes of one's parents by one's rudeness and in many other ways. Sadistic behavior in any of these forms is to be found in the adolescent. It becomes the basis for serious behavior problems only when it takes the form of determination to hurt physically or mentally, when the child's behavior is characterized by torturing animals and

younger individuals physically, and deliberately hurting the feelings of others.

Exhibitionism. Exhibitionism in the form of showing off is a common adolescent trait. The desire to see everything acts as a strong drive as does the desire to be seen by everybody. One has only to ride on the street car with high school children to see that they are constantly struggling for the attention of the entire car full of people. They wear loud ties or dresses, speak in overloud tones, fall over their own feet purposely, in a word, do anything and everything which experience has shown them to attract attention.

The desire for new experiences and for group contacts are only two phases of the desire to see. Here again abnormalities develop only when the desire to be the center of attention takes precedence over most other social adjustments and when the exhibitionism is of the type of undressing, or of wearing too scanty clothing. Neither form is met with frequently.

Ambivalence. Ambivalence represents the rapid emotional swing which seems to occur rather more frequently during adolescence than at any other time. As an illustration of ambivalence, we have the phrase commonly met with, "If a person says he hates another one, he either does love, will love, or has loved the person whom he now states that he hates." Intense fear swings to intense anger, intense hate to equally intense love.

A high degree of ambivalence is characteristic of certain types of personality. Where it occurs, it tends to give the impression of instability.

Both the mechanisms and the partial trends will be discussed further in chapters on adolescent behavior.

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Chapter VI

EMOTIONAL MATURING

ANGER drives and fear drives, particularly the former, have been operative throughout the pre-school period. The pre-adolescent child too has experienced the emotion love throughout this period, but at adolescence love receives new emphasis and a somewhat different direction. Instinctive tendencies which result in the sex drive have passed through two phases before they reach their complete development at puberty.

From birth to about three years of age the child is in a neutral period in which he differentiates little between individuals of different sexes, shows little or no sex interest, and asks few or no questions of a sex nature.

Between three and five years of age, the child passes into a second phase, the undifferentiated period, in which he shows increasing interest in sex, but in which the sex drive and the emotion love function independently. The child may love many people without this being in any way associated with feelings derived from the slowly maturing sex organs. He may and does experience the feelings which arise from the developing sex organs and the hormones which the sex glands throw into the blood stream without associating these in any way with love.

At adolescence, the sex instinct and the emotion love become associated and the individual "falls in love," a new experience. This occurs somewhere around the time

at which the sex organs and the secondary sex characters are nearing mature development.

The emotion, love, has passed through a number of phases before adolescence. From birth to the sixth month, the love object for the child is himself. He is in the auto-erotic period when his own sensations, especially those bodily sensations which are associated with stroking, petting, holding, and the like are his first interest. The emotion attaches itself slowly to the individuals from whom these sensations come. From around the sixth month to the end of the first year, love is transferred gradually to the child's mother or nurse. She becomes the love object on which the security of the infant's emotional life depends. Whereas over-petting in the first six months may result in a continued fixation of the child's affections on himself, too little stimulation may have a like effect. A normal amount of affection which expresses itself in caresses is necessary if the child is to pass out of the narcissistic stage.

The period in which the mother is the chief love object lasts until the eighth year in boys. It does not, however, develop in an unbroken line. As soon as the child develops social interests, roughly between two and one half and four years of age, there is a spread of affection to comrades and to his teacher or other adult who cares for him. The boy identifies the teacher with the mother image and transfers to her much of the affection that has been given to the mother alone. This spread of affection is essential for the normal development of the love life.

Toward the fifth year, the average boy begins to show a special interest in his father which slowly develops until the father becomes the main love object. It must be understood that the child does not cease to love himself

when his mother becomes the love object, nor does he cease to love his mother when father love becomes dominant. The change in emotional development is rather in the line of a shift in emphasis. It must also be understood that this shift does not take place over night, but takes place over several years and often so gradually that one is hardly aware of it.

At about ten years of age, the boy's interest shifts to individuals of his own age and sex. The development is at first through the selection of chums or small club groups. These club groups usually number not more than three all of whom are officers and all of whom attempt to play an equally important part in the club affairs. From the beginning of this period, the spread from single chums and small groups to gangs is rapid. By the age of twelve the gang age has developed and the boy shows a greatly lessened interest in home and home activities and a shift of response from the ideas, aims, and ideals of his home group to those of the gang. They become his world and his future love life is dependent upon his association with them.

From twelve to roughly fifteen years of age, gang domination continues. At about fifteen there begins a gradual shift toward members of the opposite sex. The shift takes place slowly, and the first contacts are rather in the nature of those which have gone on between himself and the members of his gang. He pushes, pulls, knocks against the girls who are the center of his affection, hangs on to their arms, holds hands with them. The types of response are best expressed by the slang term "rough-housing."

At the same time that this type of behavior is going on with girls of his own age, the boy is apt to find as the love object some older person at a distance from him. He

falls in love with motion picture actresses, some star of a drama which has come to his town, or sometimes even with some friend of his mother's. The period of bridging the distance between people of the opposite sex of his own age and those of his mother's generation is often a long one. It may take ten years before the love object is of his own generation, and occasionally the time is even longer. Practically all youths fall in love with individuals too far away for the love to be fully expressed, while at the same time they make playful contacts with people of their own age. Love is sometimes transferred by gradual stages, the child falling in love with a relatively younger person each time until the object of his affection is sufficiently within his own generation to have the love develop normally into marriage. Often a considerable amount of affectional demonstration or so-called petting is necessary before the individual is able to transfer his affection from the older individual to the person who is to be his life mate. Puppy love, so commonly met with, is hardly more than a rush of affection and often involves very little of the sex element.

Again, individuals may pass through any one of these stages, particularly latter ones, so rapidly that they are hardly noticeable. It is frequently found that individuals pass through few if any fixations upon older individuals and contact those individuals of their own or nearly their own age.¹ This may be forced partly by the conditions which surround the child such as too much stress² on

¹ The so-called "sophisticated" adolescent who has early sex experiences passes through the above stages rapidly if at all.

² The writer has often noted adults discussing with eight- and nine-year-olds and even with kindergarten children, their "sweethearts." Emotional tension was often present to a high degree, with shame and confusion as partial elements in the discussion.

falling in love, too much teasing about people of his own age, too many novels of a sentimental type, movies which are over-stimulating. It is possible to have cases of puppy love as early as the eleventh year of life if emotional growth is forced by such conditions as cited above. It is equally possible to force the period of adjustment to individuals of the child's own generation to such an extent that he passes through none of the last transition phases. In order to insure normal development of love life, the boy must pass through all of the stages. If, during the pre-school period, his love continues fixated on himself, he may develop into one of those individuals fortunately rare, whose entire affection is centered on himself throughout life. These individuals consider their opinions correct, their behavior adequate, and themselves as persons who should be continually surrounded by an atmosphere of worship.

The narcissistic attitude is often mistaken for the so-called "superiority complex." The interest may be fixated on the child by constant praise, not for things done, but of the child himself. Instead of saying, "That is a fine job," the parent says, "You are a wonderful child." Instead of saying, "Those are nice shoes and a good suit," the parent says, "Doesn't he look beautiful!" Such an attitude carried to excess will make the child feel that the world is his kingdom and that he is the central figure in it.

If, instead of encouraging the child's demonstration of affection, the mother and father make him feel unwanted, he may transfer his affection to other adults outside of his home, or he may be encouraged by the attitude of his parents to continue to concentrate his affection on himself

because he is not loved by those from whom he most wishes to receive recognition and affection.

A child may continue to be fixated on his mother. If the mother refuses to let the child play with other children and holds him within the circle of which she is the center, the difficulty of transference is increased. If at kindergarten or grade school age, she refuses to let him spread his interest to the school, the teacher, and his classmates, difficulty in transference is even greater.

In addition to her refusal to allow the spread of affection to comrades and other adults, the mother may hinder the spread of affection to the father. She may bribe the child to continue to love her "best in the world." The writer overheard recently the following statement from a mother to her four-year-old son who had asked where his father was and why he had not come to get him from the party. Said the mother in response to his questions, "So you love your father better than you love me. When I find that you really do, I won't make you any more cake or buy you any more candy or take you to the zoo. Your father's too busy to do nice things for you, so if you love him best, you will be cheated out of lots and lots." This was said not in jest, but in all seriousness, and to it the child responded with a flood of tears and a protest that he loved her best in the world. Whereupon she told him, "All right, if you do, I'll take you to get ice cream. If you ever say you love your father best you know what will happen to you."

This is not the only attitude that can result in a failure to transfer. There are mothers who make punishment the job of the father. These will say, "I won't punish you now, but wait till your father comes. I'll tell him, and he will spank you." Some children transfer in spite of this

attitude, but the difficulty of passing through the second stage normal in the love life of all children is greatly increased. In still other cases, the mother belittles the father, makes fun of his judgment, makes him an object not of respect, but of ridicule so that the child who would normally regard his father as the center of the world in which he lives, now regards him merely as a person who must stay in his house. The seven-year-old who remarked to his mother about his father, "Where is the man that I see over the week-end," was not being funny, nor would that attitude imply a healthful outlook for his emotional life. The mother should be willing to realize that the child's affections gradually pass from her to his comrades, his school, his teacher, then to his father. She should neither block his development nor force him to pass through any stage too rapidly.

The boy who depends too much on his mother is constantly in the state of going to her for help with his school work, with his play, and with his social contacts. It does not express a beautiful devotion when a mother says of her fifteen- or sixteen-year-old boy, "I am my boy's only sweetheart. He has always loved me better than anyone else." On the contrary, it expresses a prolongation of an infantile fixation. So completely may this be the case that the boy is never able to have a normal love life. Instead of marriage, he continues to hold his mother as his love object. If, by chance, he does marry, there is constant conflict between his concept of the mother as the love object and the wife. He holds up to his wife the images with which his mother has filled his mind. Everything that his mother does is superior to everything that is done by anyone else. His home is run not by himself and wife as partners, but by his mother, or solely in the light of

her ideas. Because of the hold which her ideas have upon him, the chance for happy adjustment of such people in the married life is small. In fact, the chance of marriage at all is not great.

The mother may have had an adjustment in her married life so unsatisfactory that she may center the affection which normally belongs to the boy's father on the child. This affection may be of such a nature that the child does not wish to escape from it, and he and his mother together may conspire to keep her as the center of his love life. One such case, a four-year-old boy when placed in a kindergarten group said through the entire morning, "I must get home to help my mother." When such protests had no effect, he regurgitated and said that school made him sick and he must go home where he was well. He and the mother had such a scene of affection in the morning as to be overwhelming to the people who watched. He called her honey, darling, and sweetheart, and she hugged and kissed him violently for a period of twenty minutes before they parted. At the end of three days during two of which the mother had spent most of the morning in the school watching the boy, and he had spent most of his morning dashing to her to be hugged and kissed, she said that the school made him too nervous. A second trial after his fifth birthday a year later developed the same result. The child was removed from kindergarten and taken home at the end of a week. His mother said that she would teach him at home, and, since she had a state teacher's certificate, was permitted to do this. It is now five years later. The boy is ten years of age and he is still at home being taught by his mother because his "nervousness" makes it impossible for him to be in a group. The outlook for a normal emotional life on the part of this

boy is wholly pessimistic. If he marries, he must of necessity identify his wife with the mother image and expect of her not the characteristics of a wife and partner, but those of a mother. If she fails to uphold the mother image, the marriage will inevitably end in disaster.

When the child has passed successfully through the stage of mother love, he has yet to pass equally successfully through the stage of father devotion. Fixations of this type are relatively infrequent. Most fathers are too busy and too absorbed to wish to keep a very heavy domination over the lives of their boys. Where, however, the father does not receive adequate satisfaction in his marital relation, and fixates on the child as the love object, father fixation may persist. It may also persist where the father is an extremely dominating individual who absorbs the boy so that he cannot break away. It may persist where the father has caused the boy to identify himself so strongly with the father and his career that he cannot go beyond those things which the father typifies. The father should be as willing to permit the spread of affection to the gang as the mother should be to permit its transfer to the father.

The next stages through which the boy must pass for normal emotional development are the transference of affection from members of his own age and sex to members of the opposite sex, and the narrowing of the age difference between himself and his love object from people out of his generation to individuals within his age group. Few individuals remain in the state of fixation on people of their own age and sex. Where this has occurred, and the boy enters college still in the crush period with members of his own sex as the love objects, much tact and skill are necessary to cause a transference. If

it persists much beyond the twentieth year, or even if it appears to persist much beyond the eighteenth, it might be well to consult a psychiatrist in order to be certain that the transference will take place and the boy pass normally from devotion to members of his own sex to devotion to members of the opposite sex. Boy Scout leaders, camp councillors, and other men who lead groups of boys should treat the "crush" not with pride nor with pleasure at being the center of such devotion. They should treat it with understanding as a phase through which the boy must pass, and should seek to help the boy to make the transfer as easily as possible.

The next phase, falling in love with individuals of the opposite sex but much older than the boy, usually passes fairly rapidly and the boy falls in love with individuals approximately his own age. Usually, he marries and conforms to the accepted pattern of family living.

There is a final stage when the affection is spread to others not represented in his family group. The individual still holds the family as the center from which his security is derived, but he is also interested in humanity as represented by the citizens of his city, his state, his nation. Such affection may spread to humanity as a whole and the individual may give his life to the service of the human race.

This type of affection may be seen in Community Chest membership, in social service, in such professions as law, medicine, education, research in various fields and, in fact, in most occupations where these are carried on from the point of view of service rather than of individual gain.

As in the case of the other phases of emotional development, this may be reached without passing through the

stage which immediately preceded it, love for members of the opposite sex. The individual may never develop the pattern of family living but may pass directly from the gang stage into the stage in which affection is spread to a particular group to which he gives service, or to humanity in the large.

Too rapid passage through the preceding phase, or elimination of it, may be caused by failure to be accepted in the first associations with the opposite sex, by a general sense that one is unacceptable for any reasons whatever, by any of the causes of conflicts listed in the preceding chapter, or it may be solely the result of any individual difference in emotional make-up, because of which the individual passes more rapidly into the final stage of emotional maturing. A foreshadowing of this final phase of development may often be seen in adolescent devotion to "causes." The rush of adolescents to enlist in the service of their country when danger threatens, and even when war has first been declared and danger is in no wise threatening to them personally is another evidence of the same trend.

The stages in emotional maturing in the affectional field have been given in detail since one finds adolescents in all phases of development. These can be interpreted and understood only when their genetic sequence is comprehended. It is often necessary to call for aid from the family physician, the psychologist, the psychiatrist, and the educator before the problems presented by individuals fixated at early stages of emotional development may be solved.

It must be kept clearly in mind, however, that there are marked individual variations in the rate of emotional

development, in the ages at which each stage is reached, and in its duration.

This is a field in which understanding is necessary but in which careless diagnosis and labeling result in far more harm than good.

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Chapter VII

EMOTIONAL MATURING (*Continued*)

EMOTIONAL maturing takes very much the same form for the girl as for the boy. The period during which the infant is fixated on herself lasts roughly for the first six months and disappears slowly so that by the end of the year, with the girl as with the boy, the mother has become the central love object. The same cautions as to care to avoid self fixation hold with the girl as with the boy. There should be no over-coddling or petting,¹ no great emphasis on the fact that the child is good looking, no great emphasis on the kind of clothes which the child wears.

A case of the writer's, aged four, came into the office for a first visit and announced, "I'm pretty. Look at me." The child was clad in white shoes, hand embroidered clothing, stiffly starched, and had highly polished, thoroughly manicured nails. The most noticeable thing about her was the coral on the nails. Unfortunately for the child, she was unusually good looking, and grandmother, aunts, uncles, mother and father had united to make her interested in herself. Her mother had brought her in because she was spending so much time looking at herself in the mirror that her mother thought there might be something wrong. It was learned that the child was

¹ The present-day method of leaving the baby in the crib without any unnecessary handling and of carrying the baby in its own basket is an excellent substitute for the constant handling and coddling which children received a generation ago.

never allowed to get dirty or to wear anything but "dress-up" clothes.

At adolescence there is a greatly increased interest in clothes and in decoration, but this need not lead to the development of narcissistic traits. The narcissistic adolescent is interested solely in herself, often spends hours in front of the mirror, walks about half-clothed, feels herself to be more wonderful than any other individual, and regards the world as a kingdom of which she is the absolute ruler. She takes the best of everything that the family offers and wishes to give nothing in return. Indeed, she feels that the family is sufficiently rewarded by the fact that she is a member of it. The narcissistic attitude again, as in the case of the boy, can be misnamed the "superiority complex."

One adolescent of this type clearly indicated narcissistic traits, but the full force of these was not discovered until the death of her father. The father died when she was eighteen years of age. Half an hour after his death, she called a relative in a nearby city and said, "My father has just died. I have a hat, coat, and suit in black that I got to wear if he died, but I have no scarf. Will you please purchase an attractive scarf to wear to the funeral?" The enormity of this dawned upon the family and treatment was instituted.

The first spread or transfer to comrades, teachers, and school takes place as soon as comrades are brought in to play with the child and as soon as she enters school. Here again the mother may fight the spread of affection from herself to others because of a lack of adequate adjustment in the marital relation, or because she does not wish her job, the care of the child, to diminish in its importance.

A four-year-old entered a kindergarten only to remain absolutely silent for the entire first week. No attempts to make her speak were successful. Each morning she would come in, sit perfectly still, move only when told, take no part in the games. When she found that absolute silence did not succeed in making the school send her home to her mother, she began to have violent attacks of nausea. The mother brought her to school in the morning, wept pitifully at leaving her, came back to kiss her a dozen times or more before she finally left, and called twice each morning to find out how the child was, insisting on each occasion that the child come to the telephone. The principal, a man of great insight into human behavior, refused to let her speak to the child and finally told her clearly what the situation was, and advised the mother to help the child to free herself from a too strong mother domination.

Adolescents with mother fixations are unable to adjust in camps or boarding schools or, in fact, in any situation away from the mother. They resist being sent away from the home. If the parents send the child to a school or camp, she weeps copiously, often refuses to eat, and actually loses sleep or pretends to lose it at an alarming rate. Often she becomes thin and pale and may actually become ill in an attempt to return to the home environment and the protection which her mother has heretofore offered. The behavior cited above duplicates the pattern shown in the behavior of the younger child who has not freed herself from the fixation upon the mother or from the too close domination of the home habits.

The father may refuse to accept the transfer of affection at about the age of six. This refusal may occur be-

cause he is too busy, because he feels that rearing the children is the job of the mother, not of himself, because he is much more interested in golf or in some other activity than in the child, or for some other, to him, equally good reason. Where the father refuses to allow the transfer to take place or the mother fights the transfer so that it does not occur, the result is a mother fixation which may last throughout life.

In such cases, the mother is the dominating factor in the choice of the adolescent's friends. She, rather than the child, chooses the clothing which the adolescent wears, takes her to and from dances, keeps her so absorbed in herself and in her home that she cannot make friends with people of her own age. Restless and unhappy, the child may do one of two things, succumb completely to the mother's domination and let the mother do all of her thinking and govern all of her actions, or she may break away from the home domination with such violence as to send her to the opposite pole of affection. She may never wish to return home, may avoid coming back from a nearby school for week-ends, for the holidays, and even for Christmas. She may move away from the town and make her own living as soon as she is old enough to leave home. This breaking away is far more to be desired than is the other extreme wherein the child becomes completely subject to the mother. If she does not break away, it is not likely that she will ever marry. If she does, her whole adjustment will depend upon the mother's ability to live peaceably with the husband and the rest of the family. If the mother continues her domination and is jealous of the girl's husband, the family will probably break up.

The next transfer probably occurs at approximately

ten years of age, at which time the girl begins to have her clubs and groups which stand for her in the same relation as does the gang for the boy. Here, too, there is a gradual transfer from the father as the main object of interest to the group. At first the girl is interested in a chum or perhaps two chums. Affection spreads to include the whole gang and by twelve the adolescent regards the adult as a person who knows little and whose opinion is not nearly so important as is the opinion of the gang. It is often extremely difficult for a parent to tolerate this attitude of the adolescent. It is understandable only when one goes back to the customs of earlier civilizations and those of primitive people. There the adolescent, after having been given the rules and regulations of the tribe and having become a man or a woman in the eyes of the tribe, is subject not to adults as adults, but to the rules, regulations, and tabus with which all primitive life is crowded. Our own type of civilization, far from freeing the child, sets up in him a conflict. The child is treated part of the time as a grown-up of whom much is expected, and part of the time as a child from whom obedience must surely come.

Affection for the group is an attempt of the child to free herself from adult domination and from the too-strong pull of affection in her home. She is reacting naturally, therefore, when she resists domination by her mother or father and seeks her emotional satisfactions in the group.

By the age of fifteen, interest in boys should have developed. It is not a fine or wholesome adjustment when a parent says of a sixteen- or seventeen-year-old, "I never had a moment's trouble with my daughter. She is entirely uninterested in boys." On the contrary, such a statement

is indicative of the fact that the girl is not developing at the normal rate, but is in a stage which indicates approximately two years emotional retardation.

The girl usually fixes her first affection on some outstanding man in the community, or in the nation. Motion picture actors are common stimuli to developing emotions, as are great national figures like Lindbergh and Byrd.

The father's friends or the older brother's comrades may be the next objects on which the affection fixes and from then on there is a gradual narrowing of the age range between the girl and the love object until the life mate is chosen at between eighteen and thirty years of age. The girl plays hockey, skates, dances, and romps with boys of her own age until this behavior gradually changes over through stages of mild puppy love to actual falling in love. Girls and boys alike appear to pass through a period in which they are more interested in falling in love than in the love object itself.

Many authorities state that girls pass through a period from fifteen to eighteen during which the father is the main love object. While this may be the case with a number of girls, it is not always so. The spread of affection to older men outside the home may be in a sense an identification with the father image, but it is somewhat far fetched to say that all girls pass through a second period during which they are more interested in their fathers than in any one else. The girl may remain at the level of father fixation and have her love so identified with the father image that she is unable to transfer to the group. She may stay at home to be with her father and because of her jealousy of her mother cause great difficulty in the family. She may be so dominated by the father

that she attempts to identify herself with the image which the father sets up and becomes neurotic because of the conflict between her real self and this second self superimposed by the father. If she marries, she may identify her husband with the father image and expect from him a father-daughter relation. The outlook for normal adult adjustment is not very good.

Where either a father or a mother fixation has occurred, it means that emotional development has been arrested at a level below that expected of adults. Girls may stay in the "crush" stage in which their attachments are solely with members of their own sex. It is not a serious matter if this crush stage persists until eighteen or nineteen years of age provided it is gradually disappearing at that time. At the same time it is well to know that crushes should not be encouraged, and that they should not give rise to any undue excitement. Treating them as a growth stage through which all girls normally pass and the length of which is a matter partly of individual difference is probably the wisest attitude. Stages may be skipped entirely or may be telescoped. No girl should be discouraged from passing through any of the stages. With her, as with the boy, it is probably necessary that all of the stages be passed through if a normally developed love life is to result.

The same spread of affection from the life mate and the family to the community, the state, the nation, even to the world occurs with the emotionally mature woman as with the emotionally mature man.

Mature Reactions to Fear and Anger. Maturing occurs in both of the other primary emotions, fear and anger. The mature adolescent has developed out of a stage in which fears were easily aroused and has acquired tech-

niques to meet new situations. He feels himself sufficiently secure so that he does not need to make constant use of escape mechanisms. Failure is more often met by an examination of the situation to determine the techniques which need improvement and by the subsequent development of these techniques, or, if examination reveals that these techniques cannot be developed by the individual, he seeks other outlets for his energies. A case will serve to illustrate this point.

A boy who had succeeded in the eight grades went to high school in a different town. Here he found himself failing in three subjects in which he had made good grades in the previous school. Instead of trying to escape from his failure in the various ways possible, he went to each teacher, found out just where his poor work was being done, with great care analyzed to find out what techniques he needed. He found after conversation with the teachers that in two of the subjects his chance of success was good if his techniques improved. In the third the instructor advised him to withdraw from the more advanced class and take an elementary course in the same subject to make up for deficiencies in training in the previous high school. His later responses involved developing adequate techniques in two situations, and withdrawing from the third in which his training was inadequate until he was prepared by further training to meet this situation successfully. An immature adolescent would have blamed his instructors, or the rooms in which he sat, or the text books used, or some other person or thing for his failures, or might have escaped into day dreams, imagining himself as succeeding in class work and being praised for his great ability. He might have escaped from the situation

by saying that he did not wish academic success, or by developing symptoms of illness, or by means of any other escape mechanisms.

Immaturity is seen in the following case. A young artist sent his paintings to an exhibition to be passed upon by competent judges. In each case the paintings failed to be hung because of certain obvious faults in technique on the part of the artist. Instead of getting constructive criticism from the judges which would have helped him to develop those techniques which would result in success in entering exhibitions, this boy claimed that he was a socialist and the judges all had capitalistic tendencies, and they were repressing his paintings because of his socialistic convictions. The mechanism which he used to escape from a sense of failure was projection. He might have used any one of the others. He might, for example, have said that after all he did not wish to have his paintings hung in an exhibit with painters of the old school since he wished to form a more modern school of his own; he might have compared himself with great painters and in his day dreams have seen himself a great figure in the world of art and the judges as overcome by the sense of their stupidity in having failed to recognize a genius, the conquering hero mechanism. The mature person would have met this situation by facing the fact that he had failed to meet the requirements set by the judges, by finding out whether he could actually develop the techniques which would make his paintings acceptable, and by developing these techniques if this were possible, or if it were not, by seeking another field in which the chance of success was greater.

These, then, may be considered as tests of emotional

maturity in regard to the emotion fear: (1) That the individual faces the facts of the case and that he does not seek either then or afterward to relegate these to the subconscious or to escape from them by any of the escape mechanisms; (2) that he examines the situation to determine the factors which may have affected the result; (3) that he tries to adjust himself to the situation and to develop adequate techniques so that these will tend to produce success, or, finding the situation beyond his influence or these techniques impossible to develop because he does not possess the capacities which they require, he turns to other interests and develops adequate techniques for success in them.

Emotional maturing in the fear-worry series presupposes a definite increase in the sense of security felt by the individual. Security in the adolescent depends upon acceptance by his family, and by the social group in which he functions. It also depends upon a variety of techniques sufficient to meet social situations and situations in the adolescent's working life. The individual whose insecurity arises from within himself rather than from external conditions over which he has little control is essentially immature, no matter what his chronological age. If he has numberless fears of more or less innocuous objects and situations, and if he is constantly making use of escape mechanisms instead of meeting situations, every attempt must be made to make him feel accepted at home, at school, in his social group, and to develop in him adequate social and job techniques. It is entirely possible to mature emotionally in the love area and to remain immature in reactions to anger and fear. Similarly one may be matured in regard to control of anger, but not mature in the love field. It is doubt-

ful if one may be mature in fear or anger control when great insecurity is present. In the present state of civilization, economic security is difficult to attain. The techniques necessary for adequate social adjustment are also difficult, and it is highly probable that the degree to which the adolescent feels himself accepted both at home and in his social group in a large measure determines the rate at which security is developed.

Emotional maturity in the anger-rage series shows itself in the absence of defense mechanisms and in the absence of displays of temper or irritability in the presence of thwarting. It shows itself equally in the attachment of anger to situations in which it would further an improvement in civilization. Civilization does not always approve the wise leader, yet he is displaying a high degree of maturity in combating detrimental influences.

The emotionally immature adolescent becomes angry at small or even fancied slights. This is frequently what is meant by "over-sensitiveness" and is directly related to insecurity. He is constantly in the position of what he feels to be implied criticism. He takes chance remarks or the chance laughter of a group as applied to himself. In a word, he takes personally anything which can be so interpreted, whether or not it has any personal reference. A high school boy came into the class room at the end of a humorous anecdote told the waiting class by the teacher. A burst of laughter followed upon the anecdote and occurred at the same time that he entered the room. Instead of waiting to determine the cause, the boy felt the whole room to be laughing at him and responded with a burst of temper of the type that should not have occurred beyond the pre-school period. A more mature

adolescent would first have determined the cause of the laughter and then have become angry if there were any reason to do so.

A high school girl went on a shopping expedition without any adult chaperonage. She approached the clerk at the counter and asked to be shown gloves. The sales girl replied, "I'll wait on you when I get good and ready. If you don't like it you can report me." Instead of responding as an immature person might have, the girl waited quietly and was later served by another clerk. When asked why she had not responded, she replied, "I stopped and thought that something awful must have happened to that girl or she would not have spoken so to a customer. She must have had a bad time in the store or in her home today." Such willingness to wait, to interpret the other individual's behavior, and to act in the light of it, is an indication of mature emotional control.

Absence of defense mechanisms implies, as does absence of escape mechanisms, that the individual is willing to face the facts of the situation in which he finds himself and to meet these with adequate techniques instead of defending himself from them by blaming others, by imagining himself a conqueror when the facts of the case are quite otherwise, with other similar types of behavior.

An adolescent girl engaged in a match as a part of a tennis tournament. As she came off the court after losing to her opponent she said, "The referee must have had drops in his eyes. He couldn't see when my balls were in and when hers were out. Besides I had the wrong racket, and my shoes were too tight." These mechanisms were being used both for escape and defense, but she carried

the defense mechanisms still farther, for wherever she went she spoke slightingly of her opponent. Defense by means of tearing down individuals with whom one associates is a highly immature reaction. In almost every group of adolescents one finds the immature individual of this type. His behavior is characterized by the fact that he repeats anything he hears to the disadvantage of other members of his social group and often makes up additional and more derogatory stories. The presence of such an individual in a club, sorority, or fraternity is always a disturbing influence, since he can be counted upon to tear down the reputations of even his closest friends. One finds this immature behavior even in adults, and these adults are as detrimental to society as are adolescents to their group. The mature individual at adolescence and beyond finds no satisfaction in attacking other individuals. Though he may disagree with and attack violently the ideas or theories of such individuals, his attack is wholly impersonal.

In general, the highest degree of maturity is arrived at when little interest in this type of attack appears, when the individual allows others to disagree with him without resentment, when he is willing to use such criticisms and contributions as come from any other individuals in his or related fields, and to synthesize as far as possible different viewpoints. It is only the immature individual, no matter what his age, whose behavior is characterized by a constant series of criticisms directed against everyone with whom he comes in contact, a hypersensitiveness in regard to criticism from others, and little or no constructive program as a result of his own thinking.

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Chapter VIII

LEARNING AT ADOLESCENCE

LEARNING at adolescence, as in earlier periods, involves the setting up of connections. The learning process in individuals of average intelligence involves relatively little adaptation on the level of the conditioned reflex and the relatively simple habit. Adolescent and adult learning involves mainly the relatively complicated habit patterns which must be set up by a long process of trial and error adaptation of material, the elements of which were mastered in earlier learning situations. It involves, also, the use of mere memorization and those other types of learning in which reasoning takes the place of sensory motor adjustment. It is highly probable that the number of sensory motor adjustments at adolescence is fairly slight, while the number of situations in which learning involves memorization and those in which learning is done by the use of directed thinking or reasoning increase rapidly with increasing age. While the reflexes may still be conditioned and appear to be conditionable throughout life, the number of occasions in which this conditioning occurs probably decreases rapidly from the preschool period to maturity. Learning of all types does, however, appear at all levels of maturity until advanced senescence. One's salivary reflexes may become conditioned to new food even at advanced age. In all cases where memory alone fails to result in adequate reactions, or where reasoning does not result in the solution of the new prob-

lem presented, trial and error learning appears even in individuals with a high order of intelligence who have reached maturity. Mastery of such games as golf and tennis may involve all levels of learning. The sight of golf equipment may produce profound perspiration or dryness of the mouth, both of which are conditioned reflexes. One may remember yesterday's instructions from the golf professional and use reasoning in the application of these instructions, but in the end much learning of the trial and error type is necessary before the swing is correct, the position of the golfer is in good form, and the ball is driven a fair distance and in the desired direction.

Learning which involves the mastery of complicated habit patterns both in terms of ideas and in terms of sensory motor adjustments usually progresses in the form shown by the typical learning curve with its short time fluctuations and its long time variations called plateaus. In learning of this type there appears to be a brief period in which learning progresses rapidly, after which there appears a period of little improvement or even a retrogression and frequent fluctuations which give the curve of learning an irregular appearance.

The period of rapid improvement in the early part of the curve has been explained by Book¹ and others. According to some authors, the rapid initial progress is due to increased interest in the material because of its novelty, to the use of previously formed habits which may function in the earlier stages of learning but which may actually inhibit the progress of learning in the

¹ Book, W. F., *Psychology of Skill, with Special Reference to Its Acquisition in Typewriting*, University of Montana Studies in Psychology, 1908, Vol. 1, Bulletin 53.

later stages, and to the fact that easier sections of the habits are memorized first. Whatever the cause, the period of rapid progress appears in most learning curves of a complex type, where the learning does not take the form of mere memorization. Where memorization alone is the process called for, the learning curve may rise slowly at first and then with increasing rapidity. It may roll up after the fashion of a snowball. According to Thorndike,

"Negative acceleration of any great amount is far from being a general rule of learning. On the contrary, it may well be that there are some functions, such as amount of knowledge of history, or of geography, or of foreign languages, or of fiscal statistics, where, by any justifiable score for 'amount of knowledge' the rate of improvement in hour after hour of practice would rise, giving a pronounced *positive* acceleration. Each item of information may, in such cases, make the acquisition of other items easier; learning some one fact may involve knowledge of a score of new facts in the shape of its relations to the facts previously learned. So knowledge may roll up like a snowball, its sum being, say, as the cube of the amount of time spent. What we may call the 'knowledge functions' do, as a rule, show, to say the least, very much less of the diminishing returns from increasing practice than do the functions of skill in some single line of work which figures so often in the experimental studies of practice."²

Starch gives the following figures for improvement in geography and American history, based on examinations given to 13,000 children in geography, and 2000 in history:³

Grade	5	6	7	8
Geography	25	46	72	
American History		7	20	38

² Thorndike, E. L., *Educational Psychology*, New York, Teachers College, Columbia University, 1913, Vol. 2, p. 257.

³ Starch, Daniel, *Educational Psychology*, The Macmillan Co., New York, 1927, p. 163.

Where reasoning is the method used to master problems, there may be no curve or so short a one as to show few if any irregularities.

After the period of initial drop which occurs in learning of the second type listed, many short time fluctuations appear in the curve. These short time fluctuations, periods of lessened progress or no progress at all, have been variously explained. They may be due to lessened interest causing fluctuations in attention with accompanying practice in error. They may be due to temporary illness, fatigue, loss of sleep, or other physical disturbances. They may be due to a change in methods of work, distraction of attention, the sudden perpetration of a new error which may occur at any time during learning. Practice in this error may cause it to become a fixed part of the habit. In this case much practice is necessary before it can be eliminated.

The long time periods of no progress or of retrogression may be due to any of the causes cited above. They may be inherent in the type of material which is being mastered. They may be due to the fact that a physiological limit has for the time being been reached.

The plateaus which may be due to the type of material mastered are such as those explained by Bryan and Harter⁴ and are discussions of the curve of learning for the mastery of telegraphy. In any type of complicated habit there may be a number of smaller units which must be mastered before the larger unit can function. In the mastery of such skills as that of speaking a foreign language, there are a number of such smaller units

⁴ Bryan and Harter, *Studies in Physiology and Psychology of the Telegraphic Language*, Psychological Review, Vol. 4, p. 53; Vol. 6, pp. 345-375.

which must be mastered before the habit as a whole can go on smoothly. In the first place, the number of words of which the meaning is known must be great. In the second place, these words must be known not only as isolated units but as parts of sentences. There are in any language a number of idioms. When even fairly well known words occur in these idioms, the meaning is so different in colloquial usage that the habit of comprehension may break down. Not only must words be understood when they occur in sentences and idioms, but the sentences must be understood when they occur in paragraphs. A plateau in the learning curve may occur at any one of these stages. That such plateaus occur in the mastery of languages has already been demonstrated by research.⁵

PLATEAUS AND OTHER CONDITIONS OF LEARNING WHICH MAY OCCUR

The plateau which indicates the physiological limit may be reached at any point in learning. It may occur at the end of any school year or at any period during the school year. It has already been pointed out that in order to master the school subjects, a certain degree of maturity as measured by mental age is necessary. The researches of Terman⁶ and others have indicated that a mental age of at least six (according to Terman it is somewhat higher) is necessary if the child is to master reading. The plateaus marking the physiological limit may occur at any time when material presented is beyond the mental age which the child has reached.

⁵ Swift, E. J., *Mind in the Making*, Charles Scribner's Sons, New York, 1908, pp. 217 ff.

⁶ Terman, L. M., *The Intelligence of School Children*, Houghton Mifflin Co., Boston, 1919.

Many wrong adaptations are involved as well as many correct ones. According to the laws of diffusion, when a new situation is met with there is a discharge not only to the muscles which will be involved in the acquisition of this pattern, but to many other parts of the body not necessarily connected with the pattern to be acquired. In the case of acquiring skill in tennis where the adjustment involved is hitting the ball and sending it into the opponent's court, the discharge may be not only to the hand which holds the racket but to the other hand and arm, the leg muscles, the muscles of the trunk, and those of the face. There may also be a discharge to the internal muscular system which is involved in visceral control. The subject may chew his tongue, twist his face into a pronounced frown, set his jaw, so tighten the muscles of the back that motion is actually difficult and jump for a ball far beyond his reach. The acquisition of this habit pattern will involve the dropping out of such irrelevant innervation as those which stiffen the back and cause the tongue to be chewed, and the integrating of relevant motions in such a manner that they will occur in proper sequence and with the proper rhythm.

Where memorization and motor adjustments are involved, the same diffuse responses are involved. Learning again takes the form of integrating ideas and motor adjustments into a pattern in which they occur in correct sequence. The ideas and motor adjustments must occur in correct rhythm, without irrelevant ideational sequences and unnecessary motions.

In selecting those ideas or motor adjustments which are to be perpetuated as a part of the pattern, recency, frequency, and intensity are operative. In order that the correct motions may appear in the presence of the

stimulus, these must have been practiced together a number of times. There should also be satisfactory results attached to those motions which are adequate, and unsatisfactory results attached to those which are inadequate or actually erroneous. This involves the factor, intensity. Other things being equal, during the learning process those activities which are most recent will occur earlier. This plays a significant part in learning inasmuch as earlier occurrence of correct responses eliminates the possibility of practice in erroneous adjustments which might have come up had the practice period between been more prolonged. In many learning situations, practice ceases when the correct responses have been made. These being last in the series are most recent to the next practice and therefore have an increased chance of appearing in it earlier.

Frequency alone may act for the perpetuation of certain of the activities which are a part of the habit pattern whether these be desirable or undesirable. In any learning situation the correct response must always occur. According to the laws of chance any of the erroneous or inadequate responses which have occurred through the diffuse discharge of nervous impulses will have only a fifty per cent chance of occurring in each practice. At the end of a sufficient number of practices, the bonds between the desirable activities and the situation have been practiced much more frequently than the bonds between the erroneous or inadequate responses, and the situation will tend to be perpetuated, while those practiced less frequently will tend to drop out. Where erroneous activities are practiced as frequently as the adequate responses, they remain a part of the pattern. This may be observed as "poor form" in sports, as ele-

ments interfering with rapid reading or good handwriting, and in many other equally diverse habit patterns.

Recency is operative with frequency in eliminating those activities which have appeared fifty per cent of the time but are a number of trials removed from the present practice. If, for example, act 1 has occurred for the first three practices and then has not occurred for the next three, which according to the law of chance is possible, it is then less recent in its practice than more successful act 2 and act 3 and therefore has less tendency to reappear at succeeding practices.

Intensity refers to both the satisfactory and unsatisfactory result of the activities which appear during practice periods. If the activities which are necessary to rapid and accurate performance can have attached to them satisfactory results, they will be learned much more rapidly. If unsatisfactory results can be attached easily to those activities which interfere with the rapid and accurate performance of the habit, learning goes on even more easily.

Many authors state that the process of learning goes on easily or with difficulty in proportion as correct responses are followed by satisfactory results and incorrect responses by unsatisfactory ones.

Where frequency alone is the factor involved in the habit formation, many practices are necessary, and some of the interfering acts will, as has been said, be practiced as frequently as are the desirable ones. These will then become a part of the habit and it consequently never functions as rapidly or as accurately as does the habit where desirable responses can be selected and undesirable ones inhibited. Because it is difficult to attach unsatisfactory results to inadequate or erroneous re-

sponses in such habits as learning to write or to play the piano, progress is exceedingly slow and poor form is present over many years or even forever. The use of a professional in learning such games as golf or tennis is common because through means of his instructions desirable activities can be selected for satisfactory results and interfering activities eliminated by attaching unpleasant or unsatisfactory ones.

Learning in the case of a complicated pattern goes on slowly and with much effort. New adjustments, therefore, are mastered only when there is a felt need. The felt need may be far apart from the subject to be mastered. It may be to avoid a poor grade and subsequent punishment. It may be to enable the learner to make a living in eight or ten years hence. It may be to be outstanding in the social group to which he belongs. No matter how far removed the need, it must be one that the adolescent himself feels. Unless such is felt the individual learns in the light of his needs and not what the learning situation itself presents. In discussing the significance of a low grade in college with certain of the students it was found that a low grade to them measured not at all the degree to which the subject had been mastered, but measured instead their ability to master the material which the instructors felt was important. Their need was not for the mastery of the sciences but to have a grade adequate to get their degrees, which in turn would lead to the securing of more remunerative positions than might otherwise be possible.

Indeed, in many classes the students may meet the "felt need" to get a passing grade by taking notes without paying attention and by cramming without learning. A high school student confessed that in one class

she had taken adequate notes but had at the same time planned all of her clothes for the coming summer. When questioned on this material in a continuation of the same subject in a college class, she found that none of the material could be recalled. Adequate learning proceeds, therefore, partly in proportion to the need which is felt by the individual learner.

Learning in adolescence will also proceed in proportion as the individual's nervous system is plastic and therefore modifiable. We may extend the number of needs felt, but the organism will respond more or less in terms of the variability of response which enables the individual to meet each new situation with a series of activities leading to its solution. He will retain the activities leading to the solution in proportion to the degree of modifiability which he possesses. This is in part a matter of individual difference in equipment, and in part a matter of age. That adolescent learning is superior to learning in the period which immediately follows it has been demonstrated by the work of Thorndike and others.⁷

According to the results of these researches sheer modifiability diminishes from twenty-two on.⁷ The general tendency indicated was for individuals of forty-two or above to show about a fifteen per cent inferiority as compared with individuals of twenty-two.

In ability to learn,⁸ the curve shows an increase from age ten to between ages twenty and thirty and a gradual decrease from approximately thirty on. It would appear that the adolescent has much greater ability to learn than

⁷ Thorndike, E. L. and others, *Adult Learning*, The Macmillan Co., New York, 1932, Chapter IX.

⁸ *Ibid.*, p. 126.

has the pre-school child and that the degree of modifiability in adolescence is higher than it will be at any later period.

Individual differences in ability to learn and in ability to retain are marked. There are slow learners who forget rapidly, slow learners who remember over long periods, individuals who are rapid in their learning but who forget rapidly, and individuals who learn rapidly and retain over long periods. The law of compensation so frequently brought into question by the results of psychological research is again not operative, for such researches as we have at the present time indicate that on the whole those individuals who learn rapidly tend to remember for longer periods, whereas those individuals who learn slowly tend to retain for shorter periods than do the rapid learners. While the results indicate a general tendency, they also indicate that the individual's rate of learning is not a sufficient basis on which to predict his rate of forgetting.

There are a number of causes in addition to individual variation in rate of learning and rate of forgetting that appear to influence both the progress of learning and the degree to which material is forgotten. In the first place the length of the periods of work and their distribution. According to the findings of Lueba and Hyde⁹ twenty minutes each day or twenty minutes every other day were better than twenty minutes twice a day or twenty minutes every third day in learning to transcribe English words to German script. According to the results of Munn¹⁰ on improvement making in substitutions,

⁹ Lueba and Hyde, *An Experiment in Learning to Make Hand Movements*, *Psychological Review*, Vol. 12, 1905, pp. 351-369.

¹⁰ Munn, A. F., *The Curve of Learning*, *Archives of Psychology*, No. 12, Vol. 2, pp. 36-52.

ten minutes twice a day was productive of the greatest progress, twenty minutes once a day of progress almost as rapid. Forty minutes a day was considerably less effective than the ten minutes twice a day or twenty minutes once a day, or one hundred twenty minutes' practice at one time resulted in barely half as much progress as the ten-minute period or the twenty-minute one. Thorndike¹¹ finds distributed practice better than concentrated in mental multiplication of three-place numbers.

A number of more recent researches have also indicated that distributed practice is better than concentrated practice, but the optimum length of time of the practice period depends partly on the subject matter to be mastered. If the material is difficult of orientation, a large proportion of the practice period is lost in orienting. For example, in a fifteen-minute practice period the first ten minutes may be spent in becoming oriented. Two-thirds of the practice period is therefore lost. On the other hand, there are materials to which orientation is so easy that only thirty seconds to one minute may be lost in this process. Practices for the latter could be considerably shorter than those for the former.

It is highly probable that at adolescence relatively long practice periods may be employed. Certainly these may be longer than those possible for children in the pre-school period. It is, however, still a question as to whether the school subject should be taught for periods of one hour five times a week, and only a few subjects included in the curriculum; or for one hour three times a week, and with a fuller program, each subject being

¹¹ Thorndike, E. L., *Practice in the Case of Addition*. American Journal of Psychology, Vol. 21, pp. 483-486.

continued over a longer period. Indeed we do not know what combination of number of subjects, length of learning periods, and duration over months or years is best for children of any age.

The consensus of opinion seems to be that courses meeting twice a week or less and continuing for a brief period yield little result, but even this has not yet been demonstrated conclusively.

It has been indicated by laboratory research that the period between practices may either facilitate or interfere with learning. If the material is such as to set up retroactive inhibition,¹² learning is slow and forgetting may be rapid. On the other hand, certain materials seem to have a facilitating effect on remembering if practiced during the intervals between the learning of other subjects. Again research is necessary before we know the effect of practice in one subject upon others.

Such other factors as interest in improvement, degree of concentration, the amount of effort exerted, and the types of imagery employed, are all operative in facilitating or inhibiting learning.

Interest in Improvement. The degree to which the individual is interested in material apparently determines in part at least the rate at which the material is mastered. At adolescence certain types of presentation appear to influence the degree of interest. Pringle, speaking of methods in presenting algebra, states that the analytic method is greatly to be preferred in teaching this school subject, as the attitude of the adolescent predisposes him to activity and aggression in the field of discovery. To be in the position of a discoverer thrills him, whereas

¹² Webb, L. W., *Transfer of Training and Retroaction*, Psychological Review Monograph No. 104, Princeton, N. J., 1917, pp. 1-90.

learning as such is often boring.¹³ The adolescent is scientific in his attitude and wishes reasons on which to base such ideas as he acquires. The analytic method in the presentation of algebra fits in with these characteristics. Of the teaching of history Pringle writes as follows:

"There is another adolescent trait, doubtless more important for the teacher of high school history than any other, to which Hall calls attention and upon which he bases his contention that the moral aim in history teaching should be supreme. 'Youth enjoys nothing like an unpointed moral, a cycle of events grouped around a great ethical problem. With this stimulus his memory, judgment, and reason work best.' Even the youthful devotee of the motion-picture theater applauds vigorously when virtue is rewarded and vice receives its natural punishment. Regardless of the adolescent's manner of life, he is naturally interested in moral issues and in the placing of conduct in the moral balance."¹⁴

Material which brings into play directly or indirectly the instinctive trends characteristic of adolescence is accompanied by a high degree of interest.

Degree of Concentration. The degree of concentration depends upon many factors, both physical and psychological. Apparently the greater the extent to which attention can be increased, the more rapid the rate of learning. Starch states that "only practice with zeal and effort is likely to bring improvement."¹⁵ He cites Bryan and Harter as saying with reference to ability to receive telegraphic messages:

"A fact which seems to be highly significant is that years of daily practice in receiving at ordinary rates will not bring a

¹³ Pringle, Ralph W., *Methods with Adolescents*, p. 126.

¹⁴ Pringle, Ralph W., *Methods with Adolescents*, D. C. Heath and Co., Boston, 1927, p. 250. (Used by special permission of D. C. Heath and Company.)

¹⁵ Starch, Daniel, *Educational Psychology*, The Macmillan Co., New York, 1927, p. 172.

man to his own maximum ability to receive. The proof of this fact is that men whose receiving curve has been upon a level for years, frequently rise to a far higher rate when forced to do so in order to secure and hold a position requiring the higher skill. That daily practice in receiving will not assure improvement is further seen in the fact that in many cases inferior operators after being tolerated for years are finally dropped because they do not get far enough above the dead line. One conclusion seems to stand out from all these facts more clearly than anything else, namely, that in learning to interpret the telegraphic language, it is intense effort which educates."¹⁶

Types of Imagery Employed. Research has not yet indicated that there are pronounced preferences for certain types of imagery at adolescence any more than there are such types in later years. The type which has been practiced most appears to be selected for the situation in which it has had this practice. Most individuals have a mixed type of imagery which results in the use of the image which will carry the meaning most fully without regard to the types of images used in the initial presentation of the material. The results of Henmon¹⁷ represent a very extreme point of view and one which has not been borne out by other experimentation.¹⁸

Rate of Forgetting. The rate of forgetting depends upon many of the same factors as those which determine the rate of learning. There are two factors, however, which influence rate of forgetting alone, overlearning and the intention to remember. As far as we have any research on the subject, the intention to remember has great effect on the length of time which the material is

¹⁶ Bryan, W. L., and Harter, N., *Studies in Physiology and Psychology of the Telegraphic Language*, Psychological Review, Vol. 4, 1897, p. 50.

¹⁷ Henmon, V. A. C., *The Relation Between Mode of Presentation and Retention*, Psychological Review, Vol. 19, 1912, pp. 79-96.

¹⁸ See Fernald, Mabel, *The Diagnosis of Mental Imagery*, Psychological Review Monograph No. 58, Vol. 14, 1912, pp. 1-169.

retained. If, for example, the pupil studies for an examination which is to occur on Tuesday with the intention of remembering for that day, forgetting proceeds at a rapid rate. From such researches as those of Meumann¹⁹ we gained the information that overlearning increases both the amount remembered and the length of time before forgetting occurs. The extent to which this overlearning must go on in the school subject is still not fully determined by present research. Bassett has given us curves of forgetting for American history in the junior high school and in the sixth, seventh, and eighth grades. She has also given us the types of things remembered and the types of things forgotten. Concrete and personal facts in history tend to be remembered; items relating to the government and names of places and of persons seem to be forgotten relatively rapidly. Such items as were emphasized frequently tended to remain, another indication of overlearning as a factor in retention.²⁰

AMOUNTS²¹ OF HISTORY RETAINED BY ALL THE CASES ON
THE INITIAL TEST AND AFTER INTERVALS OF
4, 8, 12, AND 16 MONTHS

Cases	o mo.	%	4 mo.	%	8 mo.	%	12 mo.	%	16 mo.	%
1115...	56.61	100	48.64	85.94						
807...	56.76	100	49.15	86.57	45.96	80.97				
114...	58.47	100			49.88	85.38				
344...	56.53	100	48.98	86.64	45.99	81.36	43.39	76.76		
138...	53.56	100	45.96	85.33	43.39	80.56	40.25	74.74	38.64	71.74

¹⁹ Meumann, E., *Vorlesungen zur Einföhrung in die Experimentelle Padagogik und ihre Psychologischen Grundlagen*. Vols. I, II, and III.

²⁰ Bassett, S. Janet, *The Retention of American History in Grades 6, 7, and 8*, Johns Hopkins University Press, Baltimore.

²¹ *Ibid.*

We have also some results on the retention of French vocabulary from the work of Seibert,²² who gives us the following figures:

RETENTION OF FRENCH VOCABULARY AFTER VARIOUS INTERVALS OF TIME, EXPRESSED AS PERCENTAGES OF PERFECT SCORE

Retention	Method of Learning			
	a. Studying silently	b. Studying aloud	c. Studying aloud with written recall	d. Average of a, b, c
After 50 min. (no relearning)	75.3	81.9	82.5	79.9
After 2 days (no relearning)	63.1	73.6	65.1	67.3
After 10 days (first relearning)	64.0	73.3	64.9	67.4
After 42 days (second relearning)	46.3	51.0	41.5	46.3

Cited by Brooks, F. D., *Psychology of Adolescence*.

As to the rate of forgetting in such skills as tennis and basketball, we have little or no material. Our information in regard to both the rate of learning and the rate of forgetting at adolescence needs to be supplemented by much research.

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²² Seibert, Louise C., *An Experiment in Learning French Vocabulary*. Journal of Educational Psychology, Vol. 18, pp. 294-309.

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Chapter IX

MEMORY AND REASONING

AS THE individual matures if he is of average intelligence, he tends to substitute for learning of the trial and error type described in the preceding chapter, the use of memory or reasoning as a method of attack on his problems. Whenever memory or reasoning break down in the face of a problem for which there is inadequate previous experience, or for some other cause, the individual reverts to learning of the trial and error type, though he may as learning proceeds, employ both memory and reasoning to diminish the amount of inaccurate response. The extent to which the individual is able to bring to bear upon each new problem the elements which have appeared in earlier situations and thus diminish the duration of trial and error learning is one check on the stage of mental growth which he has reached.

Three Types of Response to a Problem Situation. A comparison of the three types of response to a new situation, trial and error, memory, and reasoning is shown in the following illustration paraphrased from Angell.¹ Let us suppose, says this author, that a man is sleeping in a building which suddenly catches on fire. He jumps from his bed, depends on the memory process to locate the clothing which he has worn the night before, dresses hurriedly and again using the memory process, goes in

¹ Angell, James Rowland, *Psychology*, Henry Holt and Co., New York, 1908, pp. 293-296.

search of fire escapes which he has perceived the previous evening. Here the memory process breaks down and he is unable to locate a fire escape. Trial and error takes the place of the memory process and he rushes from window to window, from door to door trying each but without success. If he had by trial and error been able to locate a fire escape, the memory process would again have been drawn upon and he would have used a previous experience, such as the use of stairs to descend the fire escape and reach the street. The trials in this instance were unsuccessful and the individual then used reasoning as a method of solving his difficulty.

In terms of the five steps described by Dewey² reasoning or logical thinking takes the following form: (1) a felt difficulty, (2) its location and definition, (3) the formulation of a plan, program or hypothesis for the solution of the difficulty, (4) experimentation with the hypothesis to determine its validity, (5) the acceptance or rejection of the hypothesis on the basis of the experimentation conducted in step four.

In the case of the individual caught in the burning building, the reasoning process took the following form. The felt difficulty was that he was caught in the burning building and blocked in the use of his previous experience in terms of mere recall. The location and definition of the difficulty took the form of realizing the necessity for some means by which he could escape through the window. Here again imagination or memory is called into play and by means of association by similarity, he recalled the likeness between sheets torn in strips and plaited and a rope. Trying out the hypothesis meant making the rope from the sheets and then testing the rope by tying it to

² Dewey, John, *How We Think*, D. C. Heath and Co., Boston, 1910.

the bed post and pulling to determine its strength. The hypothesis was accepted when the rope was determined to be strong enough, and acted upon when the man descended the sheet rope to the ground.

REQUISITES FOR LOGICAL THINKING

The use of reasoning as the process by means of which new situations are met requires (1) accurate location and definition of the difficulty, (2) ability to keep an end in mind, (3) perception of similarities often remote, (4) a good memory which enables the individual to recall past experience, (5) the capacity for partial or relevant recall, (6) willingness to wait until all the facts are in, (7) ability to check conclusions, (8) an adequate vocabulary which will enable the individual to do his thinking in terms of words, often of an abstract nature. The extent to which each of these elements essential in logical thinking has developed by adolescence should be determined.

The Location and Definition of the Difficulty. In locating the difficulty the reasoner must be able to analyze situations fully, to orient himself in regard to his problem and to limit the field of his exploration. Unless the felt difficulty is located clearly the progress of logical thinking does not lead to the solution of the difficulty. In immature adolescents and in young children one finds a general confusion surrounding the sense of blocking or thwarting which occurs in a situation for which the individual has no predetermined reactions. In both cases immature reactions result in an explosion of movement, often referred to as "general diffusion in response to the stimulus." He may have a temper tantrum, use the defense or escape mechanisms, attack the situation with one motor response after the other.

Where the individual locates and defines the difficulty inaccurately, the hypothesis formulated can hardly be correct. The process is incorrect from the start and its end result a guide to erroneous rather than correct response. The primary requisite, therefore, for problem solving by reason is the ability to define the problem accurately. There are instances of adults inadequately trained who show little ability to do more than use trial and error in the field of ideas and of motor activity without regard to the problem which the situation actually presents. Such individuals are labeled in popular terms impulsive, highly extroverted, or by some other term which signifies unchecked overt response.

The Ability to Keep an End in Mind. The ability to keep an end in mind is dependent largely on ability to give sustained attention. According to the older psychologists, attention is of three types, voluntary, non-voluntary, and involuntary. By involuntary attention is meant the type which is given without effort and without premeditation, sometimes even when the subject does not desire to give it, for example, attention to a flash of lighting, a loud noise, some object in motion perceived in the periphery.

Non-voluntary attention is attention given willingly because the individual has an interest in the material presented. Voluntary attention is attention given with effort and often against distraction.

The first two types of attention are well developed in the pre-school and pre-adolescent periods. The ability to give voluntary attention increases slowly and only with training. The curve³ rises from year six to year six-

³ Bickersteth, M. E., *The Application of Mental Tests of Children of Various Ages*. British Journal of Psychology, 1917-1919, Vol. 9, pp. 23-73.

teen in an almost straight line showing a very rapid increase in ability to give sustained voluntary attention from year six through year sixteen. It is highly probable that it increases steadily even beyond that time in individuals who have been trained in its use.⁴ One may attend voluntarily to any one stimulus for only a few seconds unless one is able to find in the stimulus new material and thus continue attention at a high degree of concentration. This factor is partly dependent upon the general intelligence level of the individual,⁵ particularly upon the extent to which the environment has given wide experience. Ability to resist distraction is a part of the capacity to give sustained attention. We have a number of experiments on the effect of distractions at the college level. The duration and degree of concentration of attention appear to be increased in mature subjects by the presence of distractions such as the rhythmic sound of a bell, tapping, and the like.⁶ The mature individual also selects places in which distractions of an arrhythmic nature will not occur, for these, even at maturity, tend to make voluntary attention difficult.

The Perception of Similarities and the Use of a Good Memory. The formulation of a plan for the solution of the difficulty involves memory which will enable the individual to recall all previous relevant experiences. The recall must be of the carefully planned, partial type and the associations those involving similarities rather than the more generalized type of association. The learner must

⁴ Thorndike, E. L., and others, *Adult Learning*, The Macmillan Co., New York, 1928.

⁵ When we speak of adolescent maturity, we mean the mental level expected of the average adolescent since an individual may be chronologically fourteen and mentally less than seven.

⁶ Starch, Daniel, *Educational Psychology*, The Macmillan Co., New York, 1919, p. 181.

be able to select only those items which have the highest degree of relevancy to the situation and to recombine these into a pattern which will function adequately to resolve the difficulty. This will involve much trial and error in the realm of ideas or images. He will bring up an idea or image, test it out against the pattern as a whole and discard it before it even becomes a part of the hypothesis. This is done usually in terms of verbal symbols or mimetic imagery.⁷

A good memory is necessary in order that all relevant past experience may be brought into play. If the memory is poor those past experiences which would be of the highest importance in interpreting the new situation may be the ones which are not recalled. The individual may recall only the most recent of similar experiences, or only the most frequent, or only a few intense experiences of a similar nature.

There is an increase in capacity to remember at adolescence. This appears to be true of rote memory and memory for meaningful material, though we have little or no experimentation which will give us an actual statement as to how much rote memory increases from puberty to twenty-one years of age. According to Thorndike's compilation of Henderson's⁸ data, there is a very definite improvement with increasing age in the amount remembered of a page of prose scored by ideas remaining after a few minutes, two days, and four weeks.

Lyon⁹ has shown that twelve clerks and business men

⁷ Colvin, S. S., *The Learning Process*, The Macmillan Co., New York, 1912, pp. 109 ff.

⁸ Henderson, E. N., *A Study of Memory for Connected Trains of Thought*. Psychological Review Monographs, Supplement No. 1, Vol. 5, 1903.

⁹ Lyon, D. O., *The Relation of Quickness of Learning to Retentiveness*. Archives of Psychology, No. 34, Vol. 5, 1915-1917.

about thirty years of age took a shorter time to learn and re-learn material than did sixty high school pupils aged around seventeen. The difference between forty grammar school girls with a modal age of fourteen and sixty high school boys and girls with a modal age of seventeen was marked.

On the basis of such results as we have, the adolescent should be able to learn more easily and thus make more use of previous experience in the solution of problem situations.

The curves of forgetting for nonsense syllables have been demonstrated by Meumann,¹⁰ Radossawljewitch,¹¹ and many others, but we have little material on the rate of forgetting other rote material.

The Capacity for Partial Recall. The recall may be of a total rather than a partial sort. In this case, the mass of irrelevant associations will be so great as to make the selection of relevant material difficult and to delay the formulation of a hypothesis until there is no further need for the solution of the difficulty. The adolescent has as one of his marked characteristics the desire to conquer, to overcome obstacles. Continual thwarting which is the result in inadequate reasoning may produce those personality difficulties which will be treated later. One has countless instances of low grade mentalities whose type of recall is such as to bring up most experiences which have occurred contiguously without regard to their relevancy to the problem in hand. As good illustrations of such total recall, we have some of the conversations in

¹⁰ Meumann, E., and Ebert, E., *Ueber einige Grundfragen der Psychologie der Uebungsphänomene im Bereiche des Gedächtnisses*. Archiv. für gesante Psychologie, Vol. 4, pp. 1-232.

¹¹ Radossawljewitch, P., *Das Behalten und Vergessen bei Kindern und Erwachsenen*.

"Merry Wives of Windsor" and in other Shakespearean literature.

Willingness to Wait Until All the Facts Are In. The duration of attention is so short in the immature individual that he must react on the basis of first experiences whether recalled or present to sense. He cannot wait until he has examined all of the facts in the case. As an illustration of this we have the adolescent who when his car stopped, formulated the single hypothesis of lack of gas, filled the gas tank to overflowing, put his foot on the starter and, because of poor ignition, caused the car to catch on fire.

A friend of the writer's took her son with her to speeches made for a Community Chest campaign. The boy listened to the speeches unmoved, went out on the street, was accosted by a poorly dressed beggar and immediately gave him a large part of his allowance saying to his mother afterwards, "That's the kind of people we should help, the really poor ones." An equally immature adolescent reaction was made by a college student to a Chest drive. This student announced, "I want to give my money directly to the poor. If I give it to the Chest, it will be used to pay salaries and nobody should be paid when it's charity."

The Ability and Willingness to Check Conclusions. The good reasoner proceeds to the end of the solution of his problem by checking every conclusion before it goes over into overt activity. In the case of the puzzle box he tries in imagination the direction of the levers, follows each through, checks his conclusion as to its use by using his previous experience to determine whether it should or should not move in this direction, and if so the effect on the other levers, and then without a single overt

action, solves the problem. He needs only to make a series of movements in line with the carefully reasoned out program or plan to open the box. No errors are made in this process. If, on the other hand, he fails to check his conclusions, when these go over into overt activity a part of the process of opening the puzzle box will take the form of trial and error manipulation.

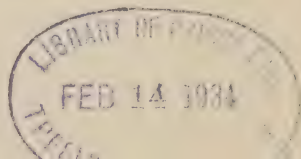
In other types of situations such as planning for a course in high school which will lead to college entrance, the individual may fail to check his conclusions by a reference to a sufficient number of catalogues and may finish his high school course, the overt action which is the expression of his logical thinking in regard to college preparation, without adequate courses to meet the entrance requirements of the college which he wishes to enter. He has gone through the process of logical thought in that he has in the presence of the felt difficulty, the choice of college courses, located and defined his particular problem, which was entrance into a specific college or university, and formulated his hypothesis. He has failed to check his conclusions in regard to it by a proper use of catalogues and by corresponding with the College Entrance Board or the registrar.

The Use of an Adequate Vocabulary. The necessity for adequate vocabulary is relatively obvious. An important characteristic of rational thinking is the ability to solve a problem in the absence of the situation itself. It is true that logical thinking may take place when the object is present, but in many instances this is not the case and thinking must proceed not in terms of concrete adjustments, but in terms of a series of verbal symbols that give the meaning of the situation. One may reason at ease in regard to events taking place three thousand miles

away, and on the basis of purely verbal responses, analyze the difficulty, locate and define it, formulate the hypothesis, experiment with its bearings and accept or reject it. A prospective traveler may look over his supply of money and on the basis of information which he has received in purely verbal terms from other travelers to Europe, accept or reject the possibility of a trip abroad. A student may decide upon attendance at a particular college or university in purely verbal terms and with nothing but catalogues he may check his conclusions as to the adequacy of the equipment of this particular institution for his individual needs.

In all of the instances given, reasoning is done largely in terms of verbal symbols, but some of it may be concrete. When one comes to the solution of problems involved in the mastery of the sciences one deals not only with verbal symbols, but with highly abstract ones. If one has not the vocabulary pertinent to the particular science in question, thinking in regard to that science is practically impossible. One cannot think of the phyla in zoology without the technical terms. One cannot deal with problems in chemistry without the chemical formulae.

The thinking of the young child tends to be concrete and largely dependent upon overt response even though reasoning is present, whereas that of the adolescent should be largely in terms of the use of symbols. The increase in vocabulary from early childhood to adulthood is marked. Terman in the Stanford Revision of the Binet Test has given us some standards based upon a dictionary containing 18,000 words. In accordance with his figures, the vocabulary of an average eight-year-old should be approximately 3600 words, at ten the vocabulary contains



5400 words, at twelve, 7200, at fourteen, 9000, at sixteen, 11,700, and for individuals having a mental age of eighteen to nineteen years and six months, 13,500. Between the ages of ten and fourteen, the vocabulary nearly doubles.

Such tests as those of Terman do not, of course, cover the knowledge of technical terms, since they are based upon a dictionary of 18,000 words. It is highly possible that the average adolescent of sixteen years of age who has had contact with the sciences would have a vocabulary of considerably more than 11,700 words.

After the age of ten, reasoning plays a large part in the score in mental tests in such examinations as the Standard Revision, but it functions as a factor before this year level. In Year VIII, the ability to reason is measured by such tests as "What's the thing for you to do when you have broken something that belongs to someone else," making a plan to find a ball lost in a field, and detecting similarities between such superficially dissimilar objects as iron and silver. In Year IX, reasoning ability is tested by making a sentence containing three words, giving three rimes for each of three words, and giving the date, all of which involve more or less logical thinking. In Year X the ability to reason is tested by the detection of absurdities such as "Yesterday the police found the body of a girl cut into eighteen pieces. They believe she killed herself," and in the test of practical reasoning, "What would you say when someone asks your opinion about a person you don't know very well?" From Year XII on the number of instances of the use of logical thinking increases. In fact, of the eight tests at this level, six involve reasoning to some degree, since the repetition of digits backwards may involve reasoning as to the processes which will best enable one to repeat them in this

order, and interpretation of pictures involves the ability to select accurate interpretations.

In Year XIV five of the six tests involve reasoning and this holds for the two year levels that follow, though other capacities are also involved in several of these tests.

The performance of an average and a feeble-minded adolescent on one of the tests of reasoning shows clearly the differences which exist due to disparity in degree of maturity in logical thinking. The third fable is as follows:

THE FOX AND THE CROW

"A crow, having stolen a bit of meat, perched in a tree and held it in her beak. A fox seeing her, wished to secure the meat, and spoke to the crow thus: 'How handsome you are! and I have heard that the beauty of your voice is equal to that of your form and feathers. Will you not sing for me, so that I may judge whether this is true?' The crow was so pleased that she opened her mouth to sing and dropped the meat, which the fox immediately ate."

As the lesson that this fable taught, a sixteen-year-old adolescent with a mental age of eight years responded, "It teaches a crow not to talk with her mouth full." The average adolescent responds, "Pride comes before a fall. If people flatter you, look out," or some other such generalization.

Reasoning is trial and error in the realm of ideas and corresponds to the earlier forms of trial and error in terms of actual motor adjustments. It has been said in discussing the problem of the puzzle box that the individual tried out the direction in which the levers went and formulated a plan for pulling them in sequence in terms of ideational experimentation. This holds just as true for solving other problems. If the following question is asked,

the solution of the problem can only be arrived at by a process of trial and error in ideational terms:

"A driver travels at the rate of fifty miles an hour and leaves the home station at twelve o'clock. What time will he arrive at Binghamton which is three hundred and eighty-six miles from the home station?"

It is entirely possible to solve this problem with a pencil and paper in which case a portion of it will be solved by overt response of trial and error sort. On the other hand, it is entirely possible to solve this problem without the use of pen, pencil, paper or any other material which will enable the solver to make any overt expression to it. He tries out one after the other the images or ideas which he has previously developed in regard to mathematical experience, selects the one which he feels is best suited to the solution of this particular problem, experiments with it and accepts it when it gives a conclusion which is apparently mathematically accurate, or rejects it if it results in a mathematical absurdity. It has been stated before that development proceeds in line with the substitution of thought for overt activity. The little child seeks to open a closed door by punching, pulling, kicking and screaming and later adopts as the best method that overt response which ended most rapidly in the desired result. The adolescent faced with a closed door would bring to bear upon it all his previous experience with doors which were not open, and instead of diffusion would think the situation through and would act overtly only when the solution was already in mind.

There is as yet no adequate body of research in regard to the extent to which adults employ logical thinking as a method of reaction to situations in which there is a felt need for a new type of response. Certain it is that this

process should far outweigh other types of response by the adolescent period.

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Chapter X

INTELLIGENCE AND MENTAL GROWTH

THE concept of general intelligence has been the source of much discussion, the general result of which has been a series of definitions differing widely in type. According to Binet,¹ intelligence is "(1) ability to take and maintain a given mental set, (2) the capacity to make adaptations for the purpose of attaining a desired end, and (3) the power of auto-criticism."

Stern² states that "general intelligence is the ability of the organism to adjust itself adequately to new situations." Thorndike³ defines it as the "power of good responses from the point of view of truth or fact." Peterson⁴ defines it from the biological point of view as follows: "Intelligence seems to be a biological mechanism by which the effects of a complexity of stimuli are brought together and given a somewhat unified effect in behavior."

Woodworth⁵ discusses intelligence from the point of view of a subject in an intelligence test. "He has to see the point of the problem now set him and to adapt what

¹ Binet, A., and Simon, T., *The Development of Intelligence in Children*. Translated by E. S. Kite, Vineland Training School.

² Stern, W., *The Psychological Methods of Testing Intelligence*. Translated by G. M. Whipple. Warwick and York, Baltimore.

³ Thorndike, E. L., in *Symposium on Intelligence and Its Measurements*, Journal of Educational Psychology, Vol. 12, Nos. 3 and 4, pp. 123-147, 195-216.

⁴ Peterson, in *Symposium on Intelligence and Its Measurements*.

⁵ Woodworth, R. S., in *Psychology*, Henry Holt and Co., New York, 1921.

he has learned to this novel situation." Burt⁶ states that "High intelligence seems to mean high capacity for continually systematizing mental behavior by forming new psycho-physical coordinations, older coordinations being retained, so that newer coordinations bring with them increased complexity and incessant change."

PSYCHOLOGICAL THEORIES OF MENTAL ORGANIZATION

The Three-Faculty Theory. The theories of mental organization are considerably fewer in number than the definitions of general intelligence. There are three main theories. The older one which gave rise to the faculty psychology originated with Aristotle's differentiation between the "rational" soul and the "animal" soul. From this came the triple differentiation between the three faculties, feeling, knowing, and willing, on which the early schools of psychology were based. When an individual experienced an emotion this meant that he was exerting his faculty for feeling; when he perceived or thought, his faculty for knowledge or cognition. The will implied the use of the faculty for "willing."

The anatomical and physical basis for this would presuppose localization of function to a high degree in the "soul" or, as later psychologists would have it, in the brain. The various refutations of this theory we need not discuss. Suffice it to say that there is no experience which involves any of these so-called faculties separately. All experience tends to involve all three.

From the concepts of this type of psychology developed a pseudo-science, phrenology.

The Two-Factor Theory. Spearman and his followers

⁶ Burt, C., *Experimental Tests of General Intelligence*. British Journal of Psychology, Vol. 3, pp. 94-177.

are the exponents of this theory. According to its tenets, performance is the product of two factors, specific ability which is necessary in the task to be performed, and a common factor, general ability. The one is narrow and specific, the other universal. This concept of intelligence is arrived at by the use of correlation formulae. Pintner⁷ holds Spearman's general factor to be synonymous with the degree of plasticity of the nervous system, a quality of the nerve tissue itself.

Thorndike⁸ takes a view in opposition to that of the two-factor theory. According to his concept, intelligence consists of a number of specific abilities which are not in any way integrated by a common factor except where there is a common element involved between two or more specific capacities. He states, "the mind must be regarded not as a functional unit, nor even as a collection of a few general faculties which work irrespective of particular material, but rather as a multitude of functions each of which involves content as well as form, and so is related closely to only a few of its fellows, to the others with greater and greater degrees of remoteness."

The theory has its anatomical and physiological correlates. Specific elements in mental functions may be identified with such areas as have been determined to mediate specific sensations or to control associations of this particular type. Both contemporary physiologists and contemporary psychologists believe that there is for each reaction a focus of activity, but that this is supported by energy liberated by the cortex acting as a whole. In fact, there are definite statements in many authorities to the

⁷ Pintner, Rudolf, *Intelligence Testing*, Henry Holt and Co., New York, 1923, p. 58.

⁸ Thorndike, E. L., *Educational Psychology*, Vol. III, Teachers College, Columbia University, New York, 1913.

effect that the cortex always acts as a whole, though there may be specific points at which the cortical tension is highest.

It is entirely unnecessary from the point of view of the actual prediction of performance whether one adopts such definitions as have been given above, or holds with such theories as have been expressed.⁹

However one defines general intelligence, or whatever one's point of view in regard to its general or specific functions, one may yet measure it in terms of mental age and intelligence quotient. The material with which we are here mainly concerned is that which is expressed in terms of mental age and intelligence quotient as measured by some standard group or individual intelligence test.

Every child may be measured in terms of one of several different ages. In the first place, the simplest, his chronological age, which is merely the number of years and months which have elapsed between the time of his birth and the time at which the record is being made.

Pedagogical age may be given in terms of the grade which the child has reached in school. It may be subdivided into a number of "subject ages." For example, reading age as measured by a test of reading, each grade in mathematics, and the like.

Anatomical age is another measure which is frequently taken. This, as has been said, is determined by the eruption of the teeth and by the degree of calcification of the long bones. (See Chapter II.)

⁹ It may be well to keep in mind in connection with such measures as have been defined for general intelligence that there are authorities who contend that intelligence is of three kinds: a purely intellectual type which deals solely with ideas and with symbols, the social which is involved in the adjustments made to all human relations, and mechanical which involves the ability to handle concrete situations and objects.

Mental age is a statement of the number of mental years and months which a child has progressed as measured by some standard individual or group intelligence test. The relation of actual mental age to the much discussed concept, general intelligence, is not a matter which we discuss here.

Measures of Mental Age. In any standard intelligence test such as the Stanford Revision of the Binet Test, we have a series of individual tests grouped at an age level. Each test measures growth in some special capacity. The sum of the tests passed indicates the general intelligence of the individual measured. For example, in the Stanford Revision of the Binet Test there are at Year XII eight tests as follows: (1) size of vocabulary, (2) ability to define abstract words, (3) ability to make a superior plan for finding a ball, (4) rearranging mixed sentences, (5) interpretation of fables, (6) ability to repeat five digits backward, (7) ability to interpret pictures and (8) giving likenesses between three superficially unlike objects. Each test, if passed, gives a credit of three months. In Year XIV, there are six tests again of different abilities, each of which if passed gives a credit of four months. In Year X, there are six tests each of which if passed gives a credit of two months. Mental age is computed in this fashion: The year at which the individual passes all tests is taken as a base. He is given credit for each test passed above this base and the total added gives the mental age made. The year at which no tests are passed is taken as the top limit.

For example, Case G, a twelve-year-old, passed all of the tests in Year X, four in Year XII, three in Year XIV, and none in Year XVI. The intelligence quo-

tient is obtained by the following formula: $M.A. \div C.A. = I.Q.$ In this case the result would be as follows:

Base	10	10 years
4 at 12 @ 3 months each		12 months
3 at 14 @ 4 months each		12 months
Total		10 years and 24 months = 12 years 0 months
<hr/>		
$\frac{12 (M.A.)}{12 (C.A.)} = 100 I.Q.$		

The Significance of Intelligence Quotients. Intelligence quotients, whether obtained from the use of the Stanford-Binet or the use of any other standard individual or group test, are generally accepted to indicate the following levels of intelligence:

I.Q. from 0 to 50	Definite feeble-mindedness
I.Q. from 60 to 70	High grade feeble-mindedness
I.Q. from 70 to 79	Border line deficiency
I.Q. from 80 to 89	Backward, dull normal
I.Q. from 90 to 109	Average intelligence, normal
I.Q. from 110 to 119	Superior, bright
I.Q. from 120 to 139	Very superior, very bright
I.Q. from 140 and above	Very unusual intelligence.

Unfortunately, in spite of the fact that we have these well standardized classifications, at adolescence they tend to break down for the reason that the top mental age possible on any standard intelligence test is nineteen years and six months. On some tests, the top mental age possible is even lower.

Beyond the age of thirteen it is impossible to make an I.Q. of over 150. Beyond fourteen the I.Q. drops correspondingly. At sixteen, the top chronological age by which one may divide, the I.Q. made cannot exceed 122.

As one increases in mental maturity, one apparently drops in intelligence quotient. This is a patent absurdity, but one which the nature of the tests themselves produces. There are authorities who claim that since fourteen is the average mental age for the population, one should use fourteen as the mental age by which one divides from the time that the child reaches his fourteenth birthday and thereafter. Even this compromise does not wholly remedy the difficulty, for an I.Q. of 150 would still be impossible to obtain. In obtaining the intelligence quotient of any adolescent, one should abide by the ruling set by the author of the mental test used in regard to the mental age to be used as a divisor after the child has passed his fourteenth birthday, but one should realize that the I.Q. obtained by very superior children may not be wholly accurate.

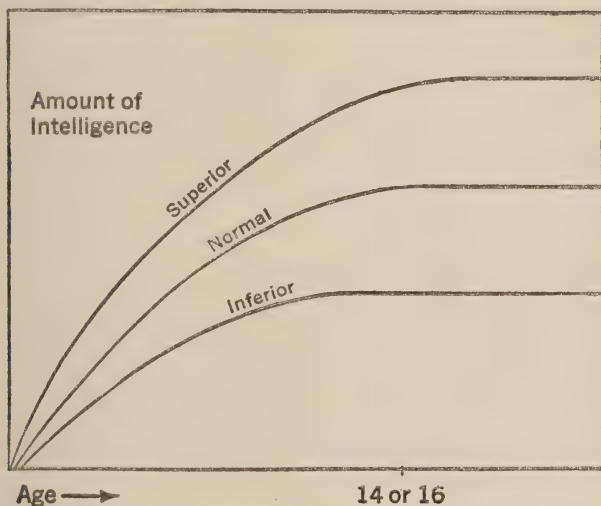
Percentile Ratings. In order to do away with this and certain other difficulties which arise in measuring intelligence at adolescence, percentile ratings may be used. These are obtained from scales standardized to enable the individual to be compared with the other members of his own group; that is, to be compared with other college freshmen, with other fourteen- or sixteen-year-olds and the like. The comparison is always made with other members of a group similar in at least one point, age, social status, inclusion in a college and the like.

An individual whose rating was at the ninety-ninth percentile would be reached or exceeded by only one per cent of the individuals in his group. An individual whose score was at the seventieth percentile would be reached or exceeded by thirty per cent of his group, while one at the fiftieth percentile would be reached or exceeded by

fifty per cent of his group and would be better than the lower fifty per cent of the same group. Such a ranking does not yield a growth curve, but it does enable one to classify each individual in comparison with his fellows.

CURVES OF MENTAL GROWTH

A curve such as the one devised by Pintner¹⁰ shows roughly the way in which intelligence increases for the superior, the normal, and the inferior individual.



There is a wide difference in both the rate of mental growth and the limits of mental growth in individuals of these three levels.

It will be seen from the theoretical curve that in all grades of intelligence there is a flattening and a cessation of mental growth at some point. Pintner's diagram does not indicate the exact age at which this would occur, and this is well inasmuch as there have been a number of

¹⁰ Pintner, Rudolf, *Intelligence Testing*, Henry Holt and Co., New York, 1923, p. 68.

studies indicating that while growth slows down it does not cease in many individuals at fourteen or even at sixteen. Such work as that of Thorndike¹¹ indicates that the development of specialized abilities may actually begin to show a rapid rise at an age when the CAVD¹² ceases to show any rise. Brooks¹³ indicates that scores in the Otis test rise until the middle of the seventeenth year.

Whatever the time at which growth in general intelligence as shown by test performances ceases, it is probable that the average age of the population is not below fourteen and not above sixteen. Somewhere within these limits will be found the median intelligence for citizens of the United States.

What is meant by the statement that the growth of intelligence ceases at fourteen or at sixteen is not what the popular mind would ordinarily suppose. It does not mean that the individual can no longer go on learning, nor does it mean that the individual will in his behavior always be restricted to the limit set by adolescent experience. Roughly what it means is that the individual has the capacity to learn characteristic of the fourteen-year-old.

The limits in scholastic aptitude set by fourteen-year intelligence have already been set by Terman and others. Few who do not develop beyond this mental level are graduated from high school and practically none from college. Such individuals have a fair chance of success in business if their jobs are suited to their ability.

¹¹ Thorndike, E. L., *Journal of Educational Psychology*, Vol. 14, p. 516; Thorndike, E. L., *The Measurement of Intelligence*, p. 467.

¹² CAVD is arrived at by a battery of tests such as vocabulary, arithmetical reasoning and the like.

¹³ Brooks, F. D., *Psychology of Adolescence*, Houghton Mifflin Co., Boston, 1929, p. 117.

They may also have an immense capacity for learning the various responses necessary to social adjustment.¹⁴

In fact, there are many individuals who adjust themselves in society, even though at a rather low level, whose measurable intelligence as determined by the result of an intelligence test is no more than that possessed by the average ten-year-old. In such cases years of experience and added increments of learning have resulted in relatively mature behavior.

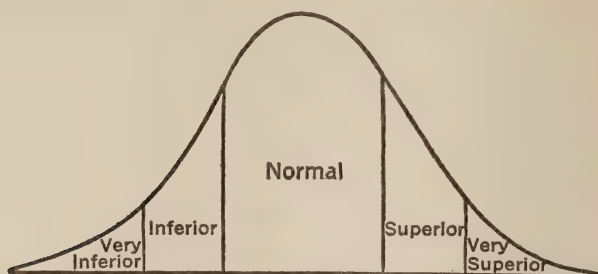
The limits set by the possession of an intelligence level of eighteen or nineteen years can hardly be measured since such individuals, if they possess other capacities equal in extent to their intelligence, may succeed in practically any field which does not require unusual special capacities.

Distribution of Intelligence. The distribution of intelligence is probably in line with the normal distribution curve. All traits appear to be distributed roughly in the following fashion: If one were to cut off the extremes of the curve so that the remainder covered 99.63 per cent of the total and divide the base line into five equal sections, one would have in the area at the extreme right three per cent of the cases, in the next area twenty-two per cent, in the center area fifty per cent, in the next twenty-two per cent and in the last three per cent of the cases whether these cases were divided on the basis of ease of emotional control, height, weight, color of hair, general intelligence, or any other measurable trait.¹⁵ The following graph represents roughly such a theoretical distribution but with the average, the middle fifty per cent,

¹⁴ The extent to which individuals progress mentally beyond a chronological age of fourteen will be discussed later.

¹⁵ Pintner, R., *op. cit.*, p. 72.

represented by a division on the graph twice as large as that described above.



The results of intelligence tests have indicated that this is roughly an approximation to the distribution of intelligence quotients.

One may divide the curve into still smaller units and arrive at such a table as that given by Gates.¹⁶

TABLE SHOWING PERCENTAGE DISTRIBUTION OF I.Q.'S

I.Q. below 70.....	1%
I.Q. 70- 79.....	5%
I.Q. 80- 89.....	14%
I.Q. 90- 99.....	30%
I.Q. 100-109.....	30%
I.Q. 110-119.....	14%
I.Q. 120-129.....	5%
I.Q. over 130.....	1%

The work of Book¹⁷ indicates a similar distribution of high school students at adolescence. If one summarizes the results of Book¹⁷ one has the following set of figures:

Individuals with A+ intelligence.....	2%
Individuals with A & B intelligence.....	20%
Individuals with C, C+ & C- intelligence all grades representing average intelligence.....	52%
Individuals with D & E intelligence.....	20%
Individuals with E- & F, very inferior.....	6%

¹⁶ Gates, A. I., *Psychology for Students of Education*, The Macmillan Co., New York, 1925, pp. 435, 487-493.

¹⁷ Book, W. F., *The Intelligence of High School Seniors*, The Macmillan Co., New York, 1922.

Very inferior refers to very inferior high school students, not to very inferior as compared with the general level of the population. A slightly different classification would yield a curve somewhat more nearly approximating the normal distribution curve.

The results of Dowd¹⁸ on the distribution of intelligence in high school students and the extent to which intelligence is a factor in success are not widely dissimilar from those of Book. A table of her results follows:

MENTAL AGES ON OTIS ADVANCED EXAMINATION GIVEN
IN THE SIXTH GRADE 1923-1924 COMPUTED TO SEPTEMBER
1, 1923 FOR NINE HUNDRED THIRTEEN PUPILS WHO WERE
LATER GRADUATED FROM HIGH SCHOOL

Mental age at time of entrance to sixth grade	Number of pupils graduated from high school in			Total
	1929	1930	1931	
Above 18 years.....	1	29	.....	30
17 yr. 6 mo.-18 yr.....	.....	2	1	3
17 yr. -18 yr. 6 mo.....	.....	4	.....	4
16 yr. 6 mo.-17 yr.....	3	4	1	8
16 yr. -16 yr. 6 mo.....	6	22	2	30
15 yr. 6 mo.-16 yr.....	1	35	.....	36
15 yr. -15 yr. 6 mo.....	.....	50	4	54
14 yr. 6 mo.-15 yr.....	7	50	4	61
14 yr. -14 yr. 6 mo.....	6	73	8	87
13 yr. 6 mo.-14 yr.....	4	75	9	88
13 yr. -13 yr. 6 mo.....	1	88	17	106
12 yr. 6 mo.-13 yr.....	2	66	15	83
12 yr. -12 yr. 6 mo.....	.....	60	13	73
11 yr. 6 mo.-12 yr.....	1	62	20	83
11 yr. -11 yr. 6 mo.....	.....	44	17	61

¹⁸ Dowd, Constance E., *A Study of High School Graduates with Reference to Level of Intelligence*, Journal of Educational Psychology, Vol. 23, December, 1932, pp. 687-702.

Mental age at time of entrance to sixth grade	Number of pupils graduated from high school in			Total
	1929	1930	1931	
10 yr. 6 mo.-11 yr.....		35	22	57
10 yr. -10 yr. 6 mo.....		17	8	25
9 yr. 6 mo.-10 yr.....		12	5	17
9 yr. - 9 yr. 6 mo.....		2	1	3
8 yr. 6 mo.- 9 yr.....		1	1	2
8 yr. - 8 yr. 6 mo.....		1	1	2
Total.....	32	732	149	913
Median.....	14 yr. 7.7 mo.	13 yr. 4.5 mo.	11 yr. 11.9 mo.	13 yr. 2.8 mo.
Quartile.....	1 yr. 1 mo.	1 yr. 3.4 mo.	1 yr. 1.7 mo.	1 yr. 3.7 mo.

It remains to determine the extent to which differences in intelligence found at adolescence influence adolescent performance in as much as this is preeminently the period for vocational guidance or counselling. On the basis of the results of Terman¹⁹ and others, it would seem that an intelligence of twelve or below puts the limits of success in school work as not beyond the upper grades. According to those of Book,²⁰ Dowd,²¹ Arlitt,²² and others, it would seem that an intelligence level of thirteen is not sufficient in most of the cases to permit its owner to be graduated from a standard classical high school; and an

¹⁹ Terman, L. M., *The Intelligence of School Children*, The Macmillan Co., New York, 1919.

²⁰ Book, W. F., *The Intelligence of High School Seniors*, The Macmillan Co., New York, 1922.

²¹ Dowd, C. E., *A Study of High School Graduates with Reference to Level of Intelligence*, Journal of Educational Psychology, December, 1932, Vol. 23, pp. 687-702.

²² Arlitt, A. H., and Hall, M., *Intelligence Tests Versus Entrance Examinations as a Means of Predicting Success in College*. Journal of Applied Psychology, December, 1923, Vol. 7, pp. 330-338.

intelligence level of sixteen or thereabouts is required for good performance in a Class A college.

The distribution of intelligence by curricula in high schools is shown by Dowd²¹ in the following table:

PERCENTILE RANKS ON OTIS ADVANCED EXAMINATION
GIVEN IN THE SIXTH GRADE

1929, 1930 and 1931 High School Graduates Separated for Curricula

Percentile rank	General	Classical	Commercial	Industrial arts	Household arts	Music	Art	Grand total
95-100.....	67	3	4	1				75
90-95.....	70	2	7		2	3		84
85-90.....	78	1	12	4	3	2		100
80-85.....	68	1	13	5	1	2		90
75-80.....	72		2	11	3		1	89
70-75.....	55		14	5		2	1	78
65-70.....	37		15	8	6	3		69
60-65.....	51		9		1	2	1	64
55-60.....	39		19	3	1	3		65
50-55.....	29		10	6	3	2		50
45-50.....	20		10	3	4		2	39
40-45.....	22		7	3	2		3	37
35-40.....	15		9	2	2		1	29
30-35.....	6		4	1	3		1	15
25-30.....	9		2	2				13
20-25.....	1		4	1				6
15-20.....	2		3	1				6
10-15.....			1					1
5-10.....	1						1	2
0-5.....	1		1					2
Total.....	643	7	146	56	31	19	11	913
Median.....	77.33	93.75	61.67	68.75	62.50	69.17	44.17	73.80
Quartile deviation.....	13.47	4.17	15.50	13.70	15.58	13.02	11.25	14.67

The significance for vocational guidance of such investigations as those of Dowd²¹ is obvious. If the results shown in her table of percentile ranks necessary for good work in the different curricula in the high school hold true for other studies, it might be well to base advice as to educational choice of curricula in high school on tests given even below the sixth grade. It is fairly obvious

that except in cases where there appears to be an excellent reason for success on the part of those who made percentile ranks below twenty-five, the probability of success is slight. In the classical curriculum, there were no percentile ranks under eighty-five, but the number of Dowd's cases are, as she herself states, too small to warrant general conclusions. In the general curriculum, the number of a total of six hundred forty-three cases with percentile ranks under twenty is only four.

Terman and Procter²³ come to much the same conclusions on the basis of a study of one hundred seven pupils who entered high school in 1916 and 1917 and forty who entered eighth grade in 1917 and 1918.

When one comes to the study of the college student, one sees a similar variation from college to college in the chance of success in college with a mental age of fifteen or below, as the list of scores on the Army Alpha test on the facing page indicates.

As has been stated, however, though there is a variation from college to college, the chances of any great degree of success in a Class A college are not high for any one with a mental age under sixteen.

It is obvious from the data given that the intelligence level of the individual sets limits to his behavior from early childhood on. If he belongs in the group of individuals whose mental age will never be more than twelve, his thwarting begins when he enters school. It will be practically impossible for him, no matter what his chronological age, to go beyond the grades. The probable limit if he stays in school until he is sixteen or eighteen will be the sixth or seventh grade. He is doomed to

²³ Terman, L. M., *The Intelligence of School Children*, Houghton Mifflin Co., Boston, 1919, Chapter VI.

College ²⁴	Median	Letter Grade	Stanford Binet M.A.	No. of Cases
Massachusetts Agricultural (men)...	150	A	18.0-19.5	154
Brown University (men).....	142	A	" "	210
Syracuse University (both sexes)...	142	A	" "	786
Colorado College (men).....	142	A	" "	148
Colorado College (women).....	142	A	" "	178
Rutgers College (men).....	138	A	" "	358
Johns Hopkins (men).....	137	A	" "	140
Notre Dame (men).....	137	A	" "	321
Ohio State University (both sexes)..	136	A	" "	5950
Penn State College (both sexes)....	132	B	16.5-17.9	847
University of Minnesota (men).....	129	B	" "	534
University of N. Dakota (women)..	129	B	" "	117
University of Minnesota (women)...	128	B	" "	354
Southern Methodist (men).....	127	B	" "	162
University of Idaho (men).....	125	B	" "	277
Southern Methodist (women).....	123	B	" "	159
Colorado Teachers College (women).	122	B	" "	266
University of Florida (men).....	120	B	" "	215
University of Idaho (women).....	117	B	" "	169
Lincoln Memorial (men).....	86	C+	15.0-16.4	171
Atlanta Southern Dental (men).....	80	C+	" "	184

(Modified from Pintner, R., *Intelligence Testing*, p. 270.)

failure at least once and probably twice if the limit of his intelligence is to be fourteen. The end result of his education will in itself present a difficulty. In a civilization in which graduation from high school is considered highly important and graduation from college is hoped for by most American citizens, the possession of an intelligence level too low to achieve these results will produce a sense of inadequacy, inferiority, insecurity which, unless techniques are developed through the educational system, will tend to result in conflicts or serious maladjustments. It has already been pointed out that the majority of cases which come to the mental hygiene clin-

²⁴ These figures are based on very few students. It is highly probable that the testing of a larger number would yield somewhat different results. Until the whole student body of each of these colleges is tested, no final conclusions can be drawn. The figures are given to indicate the probability of wide variations.

ics are not from the superior group but from the group of these low intelligences who lie between the feeble minded and those of low average intelligence, the cases with intelligence quotients from seventy to ninety.

Vocational Limits Set by Intelligence. By far the major proportion of our results on the intelligence required in different occupations comes from the studies made during the War by means of the Army test, though we have countless other studies, such as those made by Ayres,²⁵ Bills,²⁶ Bregman,²⁷ Chapman,²⁸ Flanders,²⁹ Hollingworth,³⁰ Kelley,³¹ Link,³² Pintner,³³ Terman,³⁴ Thurstone,³⁵ and others. A table showing the intelligence by trades or professions, modified from the Memoirs of the National Academy of Sciences,^{36, 37} follows:

²⁵ Ayres, L. P., *Psychological Tests in Vocational Guidance*, Journal of Educational Psychology, 1913, Vol. 4, No. 4, pp. 232-237.

²⁶ Bills, M. A., *Methods for the Selection of Comptometer Operators and Stenographers*, Journal of Applied Psychology, Vol. 5, 1921, No. 3, pp. 275-283.

²⁷ Bregman, E. O., *A Study in Industrial Psychology—Tests for Special Abilities*, Journal of Applied Psychology, 1921, Vol. 5, No. 2, pp. 127-151.

²⁸ Chapman and Chapman, *Trade Tests. The Scientific Measurement of Trade Proficiency*, Henry Holt and Co., New York, 1922.

²⁹ Flanders, J. K. F., *Mental Tests of a Group of Employed Men Showing Correlations with Estimates Furnished by Employer*, Journal of Applied Psychology, Vol. 2, No. 3, pp. 197-206.

³⁰ Hollingworth, H. L., *Vocational Psychology*, D. Appleton and Co., New York, 1929.

Hollingworth, H. L., and Poffenberger, A. T., *Applied Psychology*, D. Appleton and Co., New York, 1925.

³¹ Kelley, T. L., *Principles Underlying the Classification of Men*, Journal of Applied Psychology, Vol. 3, 1919, No. 1, pp. 50-67.

³² Link, H. C., *Employment Psychology*, The Macmillan Co., New York, 1919.

³³ Pintner, R., and Toops, H. A., *Mental Tests of Unemployed Men*, Journal of Applied Psychology, Vol. 1, pp. 325-341 and Vol. 2, pp. 15-25.

³⁴ Terman, L. M., *A Trial of Mental and Pedagogical Tests in a Civil Service Examination for Policemen and Firemen*, Journal of Applied Psychology, Vol. 1, No. 1, pp. 67-76.

³⁵ Thurstone, L. I., *A Standardized Test for Office Clerks*, Journal of Applied Psychology, Vol. 3, No. 3, pp. 248-251.

³⁶ Memoirs National Academy of Sciences, Volume XV, *Psychological Examining in the United States Army*. pp. 821 ff.

³⁷ Pintner, R., *op. cit.*, p. 369.

Occupation	Median Intelligence Rating	Stanford Binet M.A.
Laborer.....	C-	11.0-12.9
Miner.....	C-	" "
Teamster.....	C-	" "
Barber.....	C-	" "
Horseshoer.....	C	13.0-14.9
Bricklayer.....	C	" "
Cook.....	C	" "
Baker.....	C	" "
Painter.....	C	" "
Blacksmith.....	C	" "
Carpenter.....	C	" "
Butcher.....	C	" "
Machinist.....	C	" "
Hand Riveter.....	C	" "
Telegraph Lineman.....	C	" "
Pipefitter.....	C	" "
Plumber.....	C	" "
Toolmaker.....	C	" "
Gunsmith.....	C	" "
Mechanic.....	C	" "
Auto-repairman.....	C	" "
Auto-engine mechanic.....	C	" "
Auto Assembler.....	C	" "
Ship Carpenter.....	C	" "
Telephone Operator.....	C	" "
Concrete Construction Foreman...	C+	15.0-16.4
Stock-keeper.....	C+	" "
Photographer.....	C+	" "
Telegrapher.....	C+	" "
R. R. Clerk.....	C+	" "
Filing Clerk.....	C+	" "
General Clerk.....	C+	" "
Army Nurse.....	C+	" "
Bookkeeper.....	C+	" "
Dental Officer.....	B	16.5-17.9
Mechanical Draughtsman.....	B	" "
Accountant.....	B	" "
Civil Engineer.....	B	" "
Medical Officer.....	B	" "
Engineer Officer.....	A	18.0-19.5

It is interesting to note the wide variation in median intelligence rating. This can be paralleled by the variation at the first quartile and the third quartile.

It is apparent that one may succeed relatively well in

one type of occupation with a low intelligence rating whereas with another type this intelligence rating would mean little or no probability of success.

It is equally interesting to note that too high intelligence rating may produce non-success in a trade. The correlation of intelligence with certain types of occupations has shown that it may be negative. Practical experience has shown that individuals whose intelligence is too high for a routine job stay just long enough to learn the processes and then leave. The determination of levels of intelligence is therefore necessary to prevent failure on two counts. The intelligence must be high enough to permit of a probability of success in a trade or profession. It must not be so high that the individual tires after the routine processes are mastered.

As an illustration of this, one may take the case of a department store which sent for a psychologist to test bundle wrappers since they had found that the highly intelligent girls whom they picked because they were high school graduates left the job as soon as they had learned how to wrap all types of bundles equally well. In this particular store for this type of bundle wrapping a mental age of ten to eleven years was found desirable.

It is highly important to realize that intelligence is only one element in a set of factors, for intelligence alone, no matter how high, does not necessarily make for success. Success is achieved by means of a balance of traits coordinated in such a way as to produce an integrated performance. An individual may be high in intelligence but have much less energy than average and therefore fatigue easily. He may be able to do only one hour's work without the onset of this fatigue. Another individual of equally high intelligence may not fatigue until the end

of four hours' performance. Even if the two start at the same point in intelligence, the fact that one may work three hours longer per day with a high degree of concentration will be sufficient to put him ahead materially in a single unit of work. At the end of a week, he will be eighteen to twenty-one hours ahead. At the end of a month, the difference between the two in productive work will be so marked as to put one entirely out of the class of the other.

Two individuals may have equally high intelligence, but one may have one or more physical defects while the other is in perfect health.

Case H had an intelligence level of one hundred sixty but weak eyes and a tendency to respiratory trouble. His eyes permitted him to work not more than an hour and a half per day and his constant respiratory difficulties made him absent from high school one-fifth of the time. Case L also had an I.Q. of one hundred sixty but no difficulties with vision and no physical defects which caused loss of school work. Both had equal mental equipment, but the grades at the end of the year showed wide difference.

Still another instance may be cited. Case M had an intelligence level of one hundred twenty-five, but his interest was not in school work. An athlete of unusual ability and able to get along with people, he concentrated on extra-curricular activities. His laboratory mate, with approximately the same I.Q. was uninterested in other than school performance because he lacked those capacities which would enable him to get along well with his classmates. Again the school performance of the two was widely at variance.

Outstanding instances of the failure of intelligence

alone to produce successful performance may be cited. Unwillingness to work for long periods, lack of emotional stability, spoiling in early childhood and numberless other factors may negative the contribution which the intelligence alone is supposed to make.

A further discussion of the relation of traits to performance and personality follows.

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Chapter XI

PERSONALITY

PERSONALITY, as defined by Watson¹ and others, is the sum of the habits we form. An individual's personality also, it might be well to add, depends upon his general physical make-up and those sets and predispositions which he has inherited both from his remote and his immediate ancestry.

If one were to define personality in non-technical terms, one might say that it was the book the individual reads, the church he attends, his method of greeting his acquaintances and friends, the way in which he studies or reads, his hobbies, his behavior under emotional strain, the persistence with which he carries out his plans and holds to his original purposes, the presence or absence of escape and defense mechanisms, and a long list of such other characteristics both mental and physical.

The popular mind customarily reacts to personality as a whole and uses terms which will indicate that all of the qualities and capacities of individuals are integrated to form a general picture; an unusual personality, a charming personality, deficient in personality, are terms which one hears frequently. Psychologists have reacted to the problem in both ways, that is by treating personality as a single quality, as indicated in the terms "integrated personality" and "disintegrated personality," and by split-

¹ Watson, J. B., *Behaviorism*, W. W. Norton and Co., New York, 1925.

ting it into countless traits, each one of which functions to a different degree in different situations. If one may take such a classification as that of Watson² as modified by Pechstein,³ one would have the following:

"(1) General Level of Behavior; for example, how well does the subject respond to such measures as range of information, vocabulary, use of English?

"(2) General Survey of Instinctive and Emotional Equipment and Attitude; for example, how many infantile reactions and attitudes have been carried over into adult life, such as biting the nails, playing with the mouth and face, and spitting?

"(3) General Habits of Work; for example, does he complete work undertaken promptly and neatly, or is he a procrastinator, a maker of excuses, and in general a temperamental worker?

"(4) Activity Level; for example, can he put his work aside or must he take it with him, conversationally at least, into his social life and moments of recreation?

"(5) Social Adaptability; for example, how would you rate him with respect to tactfulness, quarrelsomeness, cooperation?

"(6) Recreation and Sports; for example, are there special forms of play, especially of chance, such as cards and roulette, which amount to obsessions and toward which he displays a lack of balance?

"(7) Organized Sex Life; for example, has he a tendency to talk too freely about his sex experiences, or to avoid references to this phase of his life or to certain periods of it?

"(8) Reactions to Conventional Standards; for example, is he truthful, faithful to his work, and careful of the rights and reputation of others?

"(9) Personal Bias and Peculiarities; for example, has the early petting or cruelty he has received at the hands of interested individuals made him boastful, timid, proud, overbearing; or is he generally balanced in these respects?

² Watson, J. B., *Psychology from the Standpoint of a Behaviorist*, J. B. Lippincott Co., Philadelphia, 1924, pp. 399-404.

³ Pechstein, L. A., and McGregor, A., *Psychology of the Junior High School Pupil*, Houghton Mifflin Co., Boston, 1924, pp. 128-129.

“(10) Balancing Factors; for example, have religion and church work been for him a balancing factor—one upon which he loads responsibility and from which he receives authority, and by means of which he obtains surcease from emotional strain in times of trouble?”

If one examines such a questionnaire as that of Woodworth, one finds questions directed at those qualities of personality and character which may best be summed up under the head of emotional sets and attitudes. On the other hand, we have experimentation⁴ upon what used to be regarded as single traits operating uniformly, such as persistence, cooperation, and leadership. A partial list of such individual traits follows:

- Courage
- Cheerfulness
- Emotional control
- Conscientiousness
- Accuracy
- Initiative
- Popularity
- Speed of decision
- Persistence
- Modesty
- Self-confidence
- Industry
- Attention
- Selfishness
- Unselfishness
- Sympathy

⁴ Trow, W. Clark, *Trait Consistency and Speed of Decision*, School and Society, 21:538-542. (May 2, 1925.)

Arlitt, A. H., and Dowd, C. E., *Variability Among a Group of Judges in Rating Character Traits in Children*, Psychological Bulletin, 23:617-19. (November, 1926).

Webb, E., *Character and Intelligence*, British Journal of Psychology Monographs, No. 3 (1915), 99 pp.

Yoakum, C. S., and Manson, G. E., *Self-Ratings as a Means of Determining Trait Relationships and Relative Desirability of Traits*, Journal of Abnormal and Social Psychology, 21:52-64 (1926).

Dependability

Willingness to take responsibility for own acts

Ability to face facts

Presence of defense mechanisms

Presence of escape mechanisms

Judgment

Reasoning capacity

Rote memory

Memory for sense material

Speed of reaction

As another illustration of types of traits which make up personality we have the scale of qualities used in the army, in which each individual was rated in physical qualities such as physique, bearing, neatness; in intelligence, such as accuracy, ease in learning, the ability to grasp quickly the point of view of the commanding officer, to issue clear, intelligent orders; leadership, as indicated by initiative, force, decisiveness, tact, and the like; personal qualities such as industry, dependability, loyalty, readiness to shoulder responsibility for his own acts; and finally, general value to the service.⁵

Such investigations as those of Downey⁶ are directed toward a study of personality as shown by handwriting. The qualities measured are: (1) Speed of movement as indicated by the rate at which the individual writes the words "United States of America." The words are written at the subject's ordinary speed; (2) Freedom from load. In this the subject writes "United States of America" at his best speed, and the difference of time taken to write in the first instance and in the second indicates the degree to which the individual labors under inhibitions

⁵ Scott, W. D., and Clothier, R. C., *Personnel Management*, McGraw-Hill Book Co., New York, 1923.

⁶ Downey, June E., *The Will Profile*, Department of Psychology, Bull. No. 3, University of Wyoming, 1919.

in his ordinary rate of work; (3) Flexibility. Again the test used is writing "United States of America," but here the writing is supposed to be disguised to such an extent that "none of your friends would know it." If the individual can change his handwriting completely, it indicates ingenuity or the degree to which his temperament may be called dramatic; (4) Speed of decision. The measure of this quality is the speed at which the individual checks in twenty-two pairs of opposite traits those which characterize himself. The rate at which judgments are made is supposedly measured; (5) Motor impulsion. Here the subject writes his name (a) with his eyes open; (b) with his eyes closed; (c) when his eyes are fixed on a pencil held in the hand of the examiner at the same time that the subject counts the number of taps made by the pencil; (d) the name is written while the subject keeps track of the number of times the word "fly" occurs in a list of rhymed words. Both the speed and the size of the handwriting influence the score; (6) Reaction to contradiction. Two envelopes are given the subject at the beginning of the test. He is asked to choose one and to register his decision. Later he is asked what envelope he has chosen. When he chooses correctly he is contradicted by the examiner. If he continues to hold to his point, he is scored high; if he gives in, his score is low; (7) Resistance to opposition is measured by an obstruction placed in front of the pen point, requiring the individual to exert much effort if his writing is to continue; (8) Finality of judgment is measured by the degree of consistency in the subject's second rating of himself on the list of twenty-two traits originally presented. These two tests occur in the original individual test, but are supplanted by a test called "self-confi-

dence," sixteen true-false items, and a test called "non-compliance" in which the score is in terms of the subject's resistance to changes in the original marking on the true-false test; (9) Motor inhibition. Here the words "United States of America" are written as slowly as possible. The score is high in proportion to the time taken; (10) Interest in detail. The score is in terms of the accuracy of copying handwriting printed in the test booklet as rapidly as possible and again at normal rate; (11) Coordination of impulses. "United States of America" is written on a line slightly more than an inch in length. The score in the group test is determined by the number of words which run over the line; (12) Volitional perseveration. Here the individual is scored in terms of the length of time which he is willing to practice in order to disguise his handwriting.

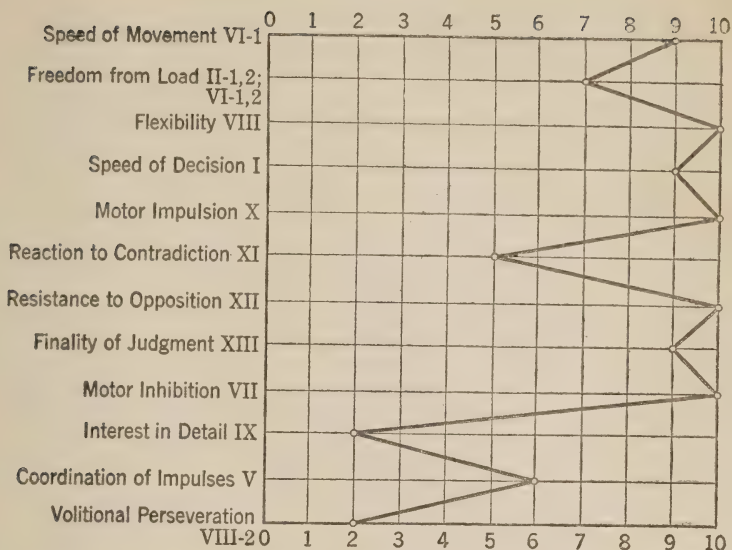
Unquestionably, the qualities of character which Downey lists would be important to measure. If these tests were accurate, they would give us valuable guides for the determination of many of the qualities which make for success at adolescence and at adulthood. The use of this measure is indicated by the accompanying chart.

CHART OF WILL-PROFILE

(From Downey's *Manual of Directions for Will-Temperament Test*, University of Wyoming Press)

PROFILE X. Profile X is that of a man who has held successfully a number of important executive positions. He is, in addition, an effective public speaker and possesses great dramatic talent.

His profile suggests, in general, the type of the successful administrator, especially with reference to the high scores for speed of decision, finality of judgment, freedom from load, re-



sistance to opposition, and motor impulsion in conjunction with high motor inhibition.

The high score for flexibility and the medium one on reaction to contradiction (tactful response) indicate social pliability and suggestibility which increase X's social assets, but are of dubious value in his business life.

The low score on interest in detail is not a serious defect, since X is in a position to turn over to subordinates the execution of many of his projects. It goes, however, with a tendency to generalize on insufficient grounds. The low score on volitional perseverance is probably a real weakness, although X's dramatic gift makes it possible for him to achieve through imitation what others work out through prolonged trial and error.

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The best that can be said of these tests is that they may indicate some variation in the trait measured. They at least point the way to a field which needs further exploration.

The correlation between certain traits at adolescence has been fairly well worked out, as, for example, the relation between ability in various subjects and intelligence. Book⁷ gives the following table as indicative of such relations:

COEFFICIENTS OF CORRELATION BETWEEN INTELLIGENCE SCORES AND THE AVERAGE SCHOLASTIC MARKS OBTAINED IN VARIOUS SUBJECTS

High School Subjects	Eng.	Math.	Hist.	Total Science Group	All For- eign Lan- guages	Aver- age Scho- lastic Success	Chem- istry	Latin
Intelligence Coefficient.	.44	.37	.25	.44	.31	.47	.52	.26
P. E. ....	.05	.05	.06	.05	.05	.05	.06	.06

We have also interesting results on the relation of the choice of occupation to intelligence as shown by the Army tests⁸ and by such tests as those of Book.⁹ Such results as those of Terman and others indicate that there is a high degree of relation between giftedness, as indicated by an I.Q. of 140 up, and such traits as the following:¹⁰ appreciation of beauty, cheerfulness and optimism, common-sense, conscientiousness, desire to excel, desire to know, fondness for larger groups, freedom from vanity and egotism, general intelligence, generosity and unselfishness, health, leadership, mechanical ingenuity, musical appreciation, originality, permanency of moods, physical energy, popularity, prudence and forethought,

⁷ Book, W. F., *Intelligence of High School Seniors*, The Macmillan Co., New York, 1922, p. 105.

⁸ Army Mental Tests, p. 23. Washington, D. C., November 22, 1918.

⁹ Book, W. F., *op. cit.*, pp. 133 ff.

¹⁰ Terman, L. M., and others, *Genetic Studies of Genius*, Stanford University Press, 1926, Vol. I, pp. 519-555.

self-confidence, sense of humor, sensitiveness to approval and disapproval, sympathy and tenderness, truthfulness, will and perseverance.

The results of Yates¹¹ also indicate a high degree of relation between superior mentality and the possession of such desirable traits as leadership, interest in sports, lessons, music, and the like. As an illustration of the results of tests of correlation indicating the inter-relation between traits, we have the work of Hughes. The following table indicates that with the tests used and under the conditions of his experiment, Hughes obtained these results.

INTERCORRELATIONS OF ESTIMATED PERSONALITY TRAITS
OF 450 HIGH-SCHOOL SENIORS¹²

	Trustworthiness	Sense of Accuracy	Self-confidence	Initiative-aggressiveness	Respect for Authority	Cooperation	Force of Personality	Capacity for Leadership	Quickness of Thought	Control of Attention	Retentiveness of Memory
Regularity-persistency...	.79	.75	.49	.55	.72	.63	.49	.41	.64	.75	.71
Trustworthiness.....		.79	.47	.56	.77	.68	.55	.46	.64	.77	.69
Sense of Accuracy.....			.64	.66	.67	.69	.61	.56	.79	.78	.79
Self-confidence.....				.80	.42	.59	.70	.68	.74	.58	.67
Initiative-aggressiveness..					.53	.72	.77	.78	.77	.67	.72
Respect for Authority....						.71	.52	.44	.53	.70	.63
Cooperation.....							.74	.73	.67	.67	.68
Force of Personality.....								.83	.74	.66	.65
Capacity for Leadership..									.70	.60	.60
Quickness of Thought....										.77	.82
Control of Attention.....											.82

¹¹ Yates, D. H., *A Study of Some High School Seniors of Superior Intelligence*, Public School Publishing Company, Bloomington, Ill., 1922.

¹² Hughes, W. H., *General Principles and Results of Rating Trait Characteristics*, Journal of Educational Method, Vol. IV, 1925, pp. 421-431.

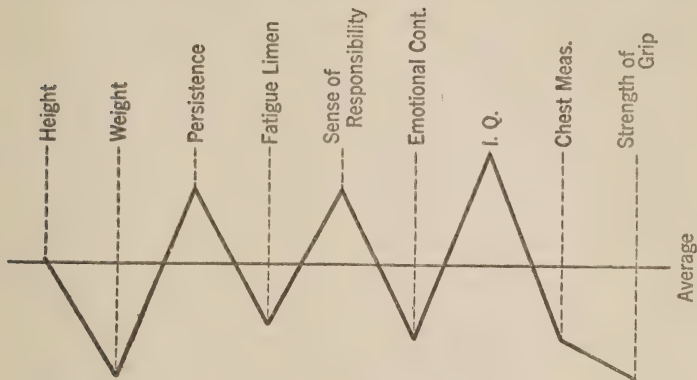
Probably these correlations would not always be obtained to the same extent between these same traits rated by different judges or measured by different tests; nevertheless, the results do indicate a high degree of relation between most traits. The correlations noticeably below average are those between self-confidence and the respect for authority, and those between respect for authority and capacity for leadership. Both of these results may be indicative. At least they point the way to further research.

By whatever means one studies personality, certain it is that adolescence is the time at which definite qualities and characteristics of personality develop, as well as aberration and abnormalities such as have previously been said to characterize adolescent development. Adolescence is primarily a time for the integration of personality patterns as it is for the integration of neuromuscular ones.

If one studies any particular adolescent, one may find in him the points at which tension will probably result and in which failure to integrate may be present. Each trait should be compared with every other trait to see the proportion in which it varies from the average. If all traits are above average, the individual will have little difficulty in integrating his own personality, but may experience difficulty in his adjustments to the group to which he is superior at every point. If one or more traits differ widely from his own pattern, those traits which are very much above or very much below this average will be difficult to integrate and will require the development of adequate techniques if they are to result in adjustments rather than to produce maladjustments. An illustration will make clear this point.

If one looks at the accompanying diagram, one sees

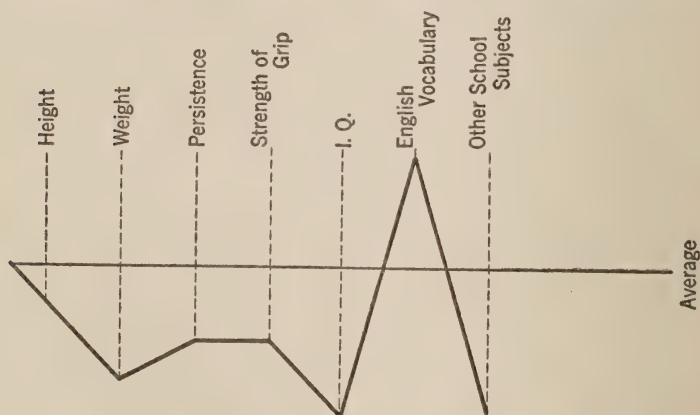
that Case A is average in height, but far below average in weight and in chest measurement; that he has been judged by competent judges to be above average in persistence, but much below average in the ease with which



CASE A

he fatigues; above average in a sense of responsibility and ability to take responsibility for his own acts, and below average in emotional control. He is by objective measures above average in intelligence, and below average in muscular strength. After going further into the qualities which make up his personality, we can see clearly certain points at which tension is practically certain to develop. Above average in height but well below average in weight, in chest measurement, and in strength would indicate that whereas by height he could take his place in the group games, because of lack of strength and unusual thinness he cannot compete. He has a high degree of persistence, which would indicate that he would keep long at his tasks, and a low limen for fatigue, which would indicate that persistence at his tasks would be accompanied by undue fatigue or even exhaustion.

Unfortunately, we have not a sufficient number of adequate tests to get a clear picture of all of the personality traits of the adolescent, but a study of even a few of them, as indicated above, would yield much of value. If one may take for example the case of a child who is above average in everything but height and social development, one can see in these two qualities points at which tension would be practically certain to develop, unless the child were given adequate techniques. These techniques would enable him to meet the situations which would present themselves as points of conflict, or tension points in his contact with other people, and in his subjective estimate of his performances in social situations.

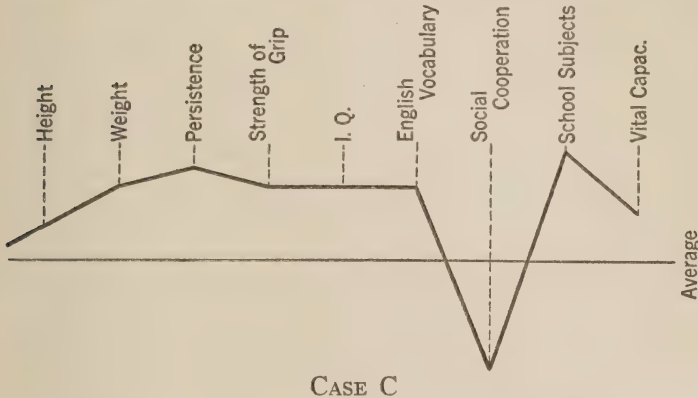


CASE B

Case B, in contrast with Case A, shows low general ability with a single point at which he appears to be superior. He is below average in height, weight, nutritional status and class grades with the single exception of ability in English. Here one sees a point at which tension will probably occur in as much as with low general abil-

ity, he cannot go very far even in the field in which he has special capacity.

Case C shows high ability in all measurable traits with the single exception that he is very much below average in social cooperation as rated by competent judges.



The difficulty of integration of personality which exists depends largely on the extent to which single traits or characteristics differ from the general pattern. Thom gives some interesting material on adolescent conflicts dependent upon just such disparities between a single trait or capacity and the general picture as have been given in Diagram B. According to this author, the possession of superior ability in one field with a general picture of intelligence and other capacities, average or below average, means that the individual will be constantly in a position of being thwarted.¹³

Such cases are not infrequent. The individual has some musical ability but inadequate intelligence to permit him to go far in this field. He has great athletic ability but

¹³ Thom, D. A., *Normal Youth and Its Everyday Problems*, D. Appleton and Co., New York, 1932.

intelligence and social habits inadequate to enable him to function in a senior high school or college group. It has been fairly well demonstrated by research in mental hygiene clinics that behavior problems occur not so much in the very superior group or in the feeble-minded group, but in the group whose intelligence quotients are between 75 and 90, those in a word with sufficient intelligence to feel thwarted but with an inadequate intelligence to overcome obstacles. The balance of traits here may or may not be inadequate, but in many cases such inadequacy does appear. There are, of course, pictures of delinquents and of adolescents with disturbed personality where the whole picture is that of low average mentality, low general ability and social reactions. Though we have such researches as those of Burt,¹⁴ Dougherty,¹⁵ Goring,¹⁶ Healy and Bronner,¹⁷ Mathews,¹⁸ Miner¹⁹ Porteus,²⁰ and others, the exact proportion in which delinquency and aberrant personality occur in the groups of unequal trait rating and in those in which the trait pattern is uniformly below average remains to be determined. In fact, we have as yet little or no research in this field.

There are certain definite aberrations which tend to

¹⁴ Burt, Cyril, *The Young Delinquent*, D. Appleton and Company, New York, 1925.

¹⁵ Dougherty, F. D., *A Study of the Mechanical Ability of Delinquent Children of the Los Angeles Juvenile Court, 1925*, Journal of Delinquency, Vol. 10, 1926.

¹⁶ Goring, Charles, *The English Convict: A Statistical Study*, Wyman and Sons, Ltd., London, 1913.

¹⁷ Healy, W., and Bronner, Augusta F., *Delinquents and Criminals: Their Making and Unmaking*, The Macmillan Company, New York, 1926.

¹⁸ Mathews, Julia, *A Survey of 341 Delinquent Girls of California*, Journal of Delinquency, Vol. 4, 1919.

¹⁹ Miner, J. B., *Deficiency and Delinquency*, Warwick and York, Baltimore, 1918.

²⁰ Porteus, S. D., *A Study of Personality of Defectives with a Social Ratings Scale*, Publications of the Department of Research, Vineland, New Jersey, Training School, 1919-20 Series, Number 23.

develop at adolescence. Among these may be listed dementia praecox in its various forms.

Since dementia praecox is characteristically a disease of adolescence, it will be treated at length in the succeeding chapter together with other phases of mental disturbances which are of interest to the educator and the parent.

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Chapter XII

DISTURBANCES IN ADOLESCENT PERSONALITY

THERE have been many theories as to the causes of personality disturbances during and after adolescence. According to Adolph Meyer,¹ Adler, and others, such disturbances are the result of undesirable habits which might have been avoided if the individual had had adequate training and proper guidance during periods of storm and stress. In the pre-adolescent as well as in the adolescent period, according to certain other authorities, such disturbances have their origin in nervous disease, glandular imbalance, or some other form of somatic change. It is highly probable that disturbances may be due to either of these factors, or indeed, to both operating together. As examples of the second, there are the behavior difficulties which are diagnosed as the after effects of encephalitis. As examples of the first, we have those based upon the use of escape and defense mechanisms which appear to be purely functional. In both cases, there are wide variations in the seriousness of personality disturbances. These range all the way from slight maladjustments which cause the individual to be regarded as a "crank," "queer," a "radical" or "eccentric" to those which, because they result in an entire inability to adjust, cause the individual to be segregated in an institution. The lines of demarcation are difficult to draw.

¹ Meyer, Adolf, *Fundamental Conceptions of Dementia Praecox*. British Medical Journal, Vol. 2, September 29, 1906, pp. 757-759.

In a discussion of maladjustments one may well proceed from the simple type as shown by slight mal-adjustments caused by conflict or imbalance of traits as discussed in Chapter X or from other causes, to the more serious forms as represented by personality maladjustments.

PERSONALITY MALADJUSTMENTS

The Frequent Use of Defence Mechanisms. In individuals of this type we have apparently no gross physical changes to account for the characteristic behavior. They may be in good health, up to average height and weight, show good muscle tone and in no way present peculiarities other than an inability to "get along well with people." The individual is constantly on the defensive. He hurts people's feelings because he is afraid that they will hurt his. He makes excuses for any fault or mistake even before it is perceived by others, delights in sarcastic response which will scathe other people, carries tales, tends to start minor or even major scandals about his acquaintances or even his friends, is often irritable and feels "put upon."

This behavior is based on a general or specific feeling of inferiority, or it may have its origin in any one of the conflicts listed in Chapter III. For example, the individual may be on the defensive because he feels that there is something wrong within his home. He projects this general feeling of criticism which he has of the home situation on everyone with whom he is surrounded. He feels that they are criticising, as he is, the home situation and defends himself from this supposed criticism by constant attacks on other people and by refusal to accept the responsibility for any of his faults. Such indi-

viduals continue in society, but are a constant source of difficulty to themselves and to others. If taken into a fraternity or sorority, they become "sore spots," spread disaffection, are constant irritants.

Variations of this type are wide. Sometimes the individual instead of defenses of the type listed, will evolve an unusual form of defense and will resolve his conflict through such mechanisms as the day dream.

Over-Timidity, Sense of Inferiority or Inadequacy with Little Use of Defense Mechanisms. In many instances the personality difficulty takes the form of a general feeling of inadequacy to which the individual reacts not by defense mechanisms, but by shyness, unwillingness to meet his fellows, unwillingness to exchange opinions, or to take part in group activity except when forced to do so. Inferiority may be based on anything which gives the child a sense of inadequacy. It may be a matter of short or tall stature or low physical vigor, mental dullness, lack of social training, organic inferiority or any other cause. The individual is not necessarily inadequate in the respect in which he believes himself to be so. It is only necessary that he feel inadequate for him to develop this and other forms of social maladjustment. By his timidity he shuts himself away and thus escapes from the situations in which he thinks that he would feel insecure.

Very careful treatment and much interest are necessary if these individuals are to develop normally instead of escaping further and further from social contacts and becoming completely introverted. The relation of this form of escape and catatonic dementia praecox appears to be relatively close, though the over-timid, shy, introverted individual may never develop any further form

of maladjustment and may function in society successfully to the extent to which he overcomes the tendency to marked introversion. There are places in which the highly introverted individual may function successfully. The research laboratory where the individual works alone or with only a few companions is an example of such a place.

For the individual's own adjustment, habits which will enable him to meet to some degree successfully with his fellows should probably be developed. Introverted types which have been enabled through wise treatment and through success in their contacts to mix with other people often make great contributions to society.

Day Dreaming. It has been well established that the use of creative imagination in day dreams is essential to successful thinking. One uses imagination in the day dream form when one plans a trip, when one evolves a new recipe, writes a book, a story or good poetry. One may use the day dream as a form of relief from too great strain when one has worked too hard. It is only the substitution of the day dream for actual accomplishment that is harmful.

Adolescents tend to live for a part of the time at least in the day dream world. They have to plan for accomplishment which will be in the future. They have, at least to some extent, to work out their social adjustments in terms of the day dream world. Idealistic as they will never be again, in the day dream world they resolve the conflicts between what they feel should be and what actually exists in terms of human behavior. It must not be considered that an adolescent who day dreams is in any way abnormal unless he shuts himself away from other companions of his age and substitutes the day dream

world for social contact with his group and for actual accomplishment.

A case of day dreaming which shows maladjustment follows:

Case B, aged fourteen, had always been somewhat shy but had mixed with his fellows until the onset of puberty. A sudden increase in height resulted in awkwardness and poor muscular control. Blushing accompanied each instance of awkwardness. The boy took to reading for hours at a time, refused to go out and play, did not wish to join the team and would sit for hours when he was not reading in a day dream state. His dreams according to his own report consisted of situations in which he was the hero of the football field, dances at which he was the most sought for boy, classes in which his recitations were so brilliant that they dazzled the instructors. In his day dreams he referred to himself as "that wonderful young Mr. Brown." In a word, the conquering hero form of escape mechanism. At the same time, his class work deteriorated and he failed to "try out" for places on the team or for track sports. The teacher and the consulting psychiatrist for the school as well as his parents noticed the behavior, and, on the advice of the psychiatrist, succeeded in developing techniques for social contact and in making the real world more interesting than the world of dreams.

To the normal adolescent, this latter is the case. The real world is so much more exciting than the day dream that though the adolescent may have recourse to day dreams part of the time, he comes back to the real world to test out the success of the day dream. In the case of the maladjusted child, the day dream is an end in itself. The real world is escaped from through means of dreams.

Over-Compensation. Another form of personality maladjustment is found in the escape and defense mechanism, compensation. Here again the individual may be of

the timid type, but instead of escape in day dreams, he compensates for his timidity, for his sense of inadequacy, by showing off, speaking very much more loudly than even his adolescent companions in the show-off stage, being impertinent when he feels most submissive. Such adolescents may be a constant annoyance in the class room inasmuch as they compensate for the desire to remain unnoticed by becoming the center of attention. This tendency to take the center of the stage is merely an exaggeration of a tendency which is strong in both the pre-school period and at adolescence.² It is interesting to note that compensations of this type are quite frequent.

Other Forms of Personality Difficulty. One may see personality difficulty manifesting itself in terms of any of the escape and defense mechanisms. The exaggeration of any one of these will cause difficulty in the adolescent's contacts with his fellows. If he constantly projects his faults on other people, developing the "alibi" type of behavior, his fellows will tend to react against him to some degree. If he compensates for a feeling of inadequacy by the use of unchecked imagination, telling wild stories of his own prowess or that of his family, he will again not adjust well to his group.

It must be kept in mind, however, that it is not only a sense of inadequacy which may cause this difficulty. Actual superiority at too many points may also produce maladjustment to the group and cause the use of escape and defense mechanisms. The very superior child must learn techniques by means of which he bridges the gap between his own ability and the ability of other individuals. There appears to be in the make-up of the human a resistance to marked superiority in other indi-

² For further discussion, see Chapter V.

viduals. It is therefore as important to teach the superior child not to develop inferiorities in other individuals who feel inadequate by comparison with his superior ability, as it is to teach the individual who feels inadequate, techniques which will make him feel secure and thus feel no need for escape or defense.

DEMENTIA PRAECOX

Dementia praecox appears in four distinct phases, dementia praecox simplex, or simple dementia praecox in which the characteristic factor is that of indifference, catatonic dementia praecox, paranoid dementia praecox and hebephrenic dementia praecox.

Dementia Praecox Simplex. The case is accused of lacking ambition, of being lazy, or slovenly and careless, but hallucinations, mannerisms, dreams and negativism which characterize other forms of dementia praecox are slight or even absent. The onset of the disease is not marked by a crisis, but is on the contrary so insidious that the actual date at which it began is difficult if not impossible to determine. Apparently mental deterioration accompanies this form of dementia praecox and is marked by total indifference on the part of the subject. Cases of this type are occasionally diagnosed as feeble minded, but are in no sense true aments.³

³ It is well to note here the clear differentiation between the ament and the dement. In the former case, the individual has from birth or due to disease in early life an inability to progress mentally at the normal rate. He is the individual with an I.Q. of 60 or below (some authorities place the I.Q. at 70 or below), the individual who is truly feeble minded. There appears to be actual basis for this feeble mindedness in the make-up of the brain (see Treadgold, *Mental Deficiency*). The dement is an individual originally possessed of adequate mental capacity but now unable, because of functional difficulties or actual nerve deterioration, to adjust to society. Dementia means literally a subtraction from mentality and results in gradual diminution of mentality.

A typical case of dementia praecox simplex is shown in the following letter of a school principal to the parents of the case:⁴

"As you can see, the marks of M. L. are no better than those for the preceding term, far from it. This pupil pays no attention to his duties, which three-fourths of the time are left unfinished; he no longer takes the trouble of learning his lessons. In the class room and at his studies he spends most of his time dreaming. It is evident that he cares nothing for his work. His professors no longer recognize in him the former studious pupil. It seems that even the approaching examinations do not affect his indifference. When it is pointed out to him that he is likely to fail, he promises vaguely to be more diligent, but one can see that he has no firm determination. The comments and suggestions in the letters of his parents no longer have any effect on him. . . . He has become quite unsociable. He does not seem to be pleased except when alone. When, by way of exception, he joins his comrades in conversation or in play, he soon leaves them, often after quarreling with them over some absurd trifle. . . . Lately he has been complaining of headache. We have had the physician see him, but he has found nothing serious and has merely prescribed rest."

Catatonic Dementia Praecox. Catatonic dementia praecox is of greater seriousness both in its onset and in prognosis. Indifference to all external stimuli appears and gradually increases. This may be followed by a period of depression of a marked type. The individual finally appears to be in a stupor. He evinces no reaction to pricks with a pin, to hunger, and pain of other sorts. The individual is in no sense paralyzed, but he is cut off from stimuli from the external world and even from his own organism. His arm may be placed in a peculiar position and will remain so until the muscles become so

⁴ Reprinted by permission from *Manual of Psychiatry*, by Aaron J. Rosanoff, published by John Wiley and Sons, Inc., p. 106.

fatigued that the arm drops. There are many stereotyped movements and facial grimaces present which tend to disappear during sleep. In these cases there are two types of response which are peculiarly interesting, mutism and refusal of food. The individual neither speaks nor responds to speech. He has to be fed, often with liquid food.

At any time during the progress of the case catatonic excitement may occur and the individual throw glasses against the wall, smash dishes and the like. Catatonic stupor and catatonic excitement are characteristically free from emotion as it appears in normal individuals.

It is interesting to note in connection with catatonia that the individual, through means of the phenomena associated with this state, is able to escape entirely from the world. It has been pointed out in connection with the emotion fear in its insecurity phase that the individual in early life tended to run away or withdraw physically from situations, objects and persons which produced these emotional states, but that with increasing maturity he tended to submerge the ideas and to escape in terms of one or more of the mechanisms. Here we have an excellent illustration of a form of escape through which the individual succeeds as effectively in getting away from disturbing elements as if he had taken to his heels and run, or had at hand some means of transportation which would whisk him from this world into another and more desirable one. Whether the cause be physical or no, the result is complete escape.

Paranoid Dementia Praecox. Paranoia, the third form in which dementia praecox appears, has been definitely diagnosed as functional. Of it Hunter says:

"No changes can be found in the nervous system with which to correlate paranoia. It is therefore a functional disease. The

heredity of paranoid patients shows marked neuropathic (abnormal nervous) tendencies. The disease itself may be characterized as one of chronic systematized delusions. . . . Many "cranks" and "peculiar" people that one constantly meets either are suffering from paranoia or are what may be termed *paranoid characters*. People who have had a single fixed idea largely elaborated, who have regarded themselves as persecuted and as set apart from their fellows in ability and character, are paranoiacs. In this group can be found many leaders who have won distinction in war, politics, and religion.

"There seems to be good reason to believe that the systematized delusions of paranoia are defense mechanisms. Here, e.g., is a person who drifts from one job to another, failing at first from inability. Rather than admit his own inferiority, he begins to note seemingly suspicious behavior among his associates. They are spying upon him. They are carrying tales. They tamper with his work. Perhaps he reports the matter to his employer. Finally he is dismissed, and then he repeats the behavior in other situations. People soon begin to notice his peculiar actions, and their attention increases his persecutory delusions. Because his pains are many, he must have many enemies. Indeed, he is pursued by organized bands and groups. He may now hit upon the suggestion that the persecution results from his own great superiority—his associates are jealous of his skill. He is a Messiah, or the world's greatest soldier, or inventor, or what not. His manly characteristics are such that he is passionately loved by a beautiful lady whom his enemies prevent from coming to him—endless indeed is the list of delusions the paranoiac may have."⁵

The ease with which the paranoid escapes from his sense of inadequacy is obvious. He projects his faults on other individuals or situations and thus enables himself to withdraw as an unsuccessful agent. Projection here operates also as a defense mechanism, for he de-

⁵ Hunter, Walter S., *General Psychology*, University of Chicago Press, 1923. (Cited by Taylor, W. S., *Readings in Abnormal Psychology and Mental Hygiene*.)

fends himself from the possibility of blame by placing others in the position of being blamed.

In paranoid dementia praecox the individual is insecure. He feels himself to blame for some sin either of omission or commission, or because of some conflict. He projects the thoughts which he has about himself to others and feels that they are blaming him or holding him guilty of the sin, or are seeing the inadequacies of which he himself is aware. The relation of this type of dementia praecox to the defense and escape mechanisms, discussed in connection with fear and anger states, is clear, for one needs only to have in mind the implications of the projection mechanism in order to see its functioning in this disease.

Paranoid dementia praecox may be of the persecutory, of the melancholic, or of the megalomaniacal variety. The first two types are self-explanatory. The third is characterized by ideas of grandeur. These individuals feel themselves to be the most intelligent men in the world, to own immense fortunes, or even to have supernatural powers. Megalomania is probably a compensation for felt inadequacy and as such functions in the manner discussed in Chapter IV.

Hebephrenic Dementia Praecox. Hebephrenic dementia praecox is characterized by a tendency to silliness, smiling, grimacing, and ideas of an absurd or ridiculous nature. There are many mannerisms, often of a grotesque type. The individual is unable to concentrate. It results rapidly in deterioration. According to some authorities, there is much difficulty in differentiating between the hebephrenic and other forms of the disease.

THEORIES AS TO THE PATHOGENESIS OF DEMENTIA
PRAECOX

There are at least three theories as to the pathogenesis of dementia praecox, the anatomic theory, the psychobiologic theory, and the toxic theory. The authors of the anatomic theory believe that there are actual organic brain changes which cause the manifestation of dementia praecox. Southard⁶ found no coarse brain changes such as intracranial arteriosclerosis, but found nineteen foci of gliosis distinctly palpable in the fresh brain substance. Alzheimer⁷ and others find certain products of nerve cell deterioration both in the cells and in the perivascular spaces. Rosanoff⁸ states that "dementia praecox is associated in some way with changes in the brain which lead to atrophy."

According to the toxic theory, dementia praecox is the result of definite toxins produced by endocrine dysfunction, focal infections and metabolic disturbances.

Adolf Meyer⁹ is the principal exponent of the psychobiologic theory. His view is expressed in the following quotation:

"Every individual is capable of reacting to a very great variety of situations by a limited number of reaction types.

⁶ Southard, *A Study of the Dementia Praecox Group in the Light of Certain Cases Showing Anomalies or Scleroses in Particular Brain Regions*. American Journal of Insanity, July, 1910.

⁷ Alzheimer, *Beiträge zur Kenntniss der pathologischen Neuroglia und ihrer Beziehungen zu den Abbauvorgängen in nervösen Gewebe*. Histologische und histopathologische Arbeiten über die Grosshirnrinde, 3, 1910.—Orton, Samuel, *A Study of the Brain in a Case of Catatonic Hirntod*. American Journal of Insanity, April, 1913, Vol. 69, pp. 669-687.

⁸ Rosanoff, *A Study of Brain Atrophy in Relation to Insanity*. American Journal of Insanity, July, 1914, Vol. 71, pp. 101-148.

⁹ Meyer, Adolf, *Fundamental Conceptions of Dementia Praecox*. British Medical Journal, September 29, 1906, Vol. 2, pp. 757-759. (Cited by Rosanoff, A. J., *Manual of Psychiatry*.)

"The full, wholesome, and complete reaction in any emergency or problem of activity is the final adjustment, complete or incomplete, but at any rate clearly planned so as to give a feeling of satisfaction and completion. At other times there results merely an act of perplexity or an evasive substitution. Some of the reactions to emergencies or difficult situations are mere temporizing, attempts to tide over the difficulty, based on the hope that new interests crowd out what would be fruitless worry or disappointment; complete or incomplete forgetting is the most usual remedy of the results of failures, and just as inattention and distraction correct a tendency to overwork, so fault-finding with others, or imaginative thoughts, or praying, or other expedients are relied upon to help over a disappointment, and, as a rule, successfully. Other responses are much more apt to become harmful, dangerous, uncontrollable—a rattled fumbling, or a tantrum, or a hysterical fit, or a merely partial suppression, an undercurrent, an uncorrected false lingering attitude, or whatever the reaction type of the individual may be. What is first a remedy of difficult situations can become a miscarriage of the remedial work of life, just as fever, from being an agent of self-defence, may become a danger and more destructive than its source. In the cases that tend to go to deterioration certain types of reactions occur in such frequency as to constitute almost pathognomonic empirical units. I would mention hypochondriacal trends, ideas of reference, fault-finding or suspicions, or attempts to get over things with empty harping, unaccountable dream-like frequently nocturnal episodes, often with fear and hallucinations, and leading to strange conduct, such as the running out into the street in nightdress, etc., or ideas of strange possessions with hallucinatory dissociations, or the occurrence of fantastic notions. All these appear either on the ground of a neurasthenoid development, or at times suddenly, on more or less insufficient provocation, with insufficient excuse, but often enough with evidence that the patient was habitually dreamy, dependent in his adjustment to the situations of the world rather on shirking than on an active aggressive management, scattered and distracted either in all the spheres of habits or at least in some of the essential domains of adjustment which must de-

pend more or less on instinct or habit. On this ground reaction types which also occur in milder forms of inadequacy, in psychasthenia and hysteria or in religious ecstasy, etc., turn up on more inadequate foundation and with destructive rather than helpful results. We thus obtain the negativism no longer as healthy indifference and more or less self-sparing dodging, but distinctly as an uncontrollable unreasoning blocking factor. We obtain stereotypes not merely as substitutive reactions and automatisms on sufficient cause such as everybody will have, but, as it were, as a reaction of dead principle in a rut of least resistance. We see paranoic developments with the same inadequacy of starting point and failure in systematization, and in holding together the shattered personality, etc.

"Therapeutically, this way of going at the cases will furnish the best possible perspectives for action. We stand here at the beginning of a change which will make psychiatry interesting to the family physician and practitioner. As long as consumption was the leading concept of the dreaded condition of tuberculosis, its recognition very often came too late to make therapeutics tell. If dementia is the leading concept of a disorder, its recognition is the declaration of bankruptcy. Today the physician thinks in terms of tuberculous infection, in terms of what favors its development or suppression; and long before 'consumption' comes to one's mind, the right principle of action is at hand—the change of habits of breathing poor air, of physical and mental ventilation, etc. In the same way, a knowledge of the working factors in dementia praecox will put us into a position of action, of habit-training, and of regulation of mental and physical hygiene, as long as the possible 'mental consumption' is merely a perspective and not an accomplished fact. To be sure, the conditions are not as simple as with an infectious process. The balancing of mental metabolism and its influence on the vegetative mechanisms can miscarry in many ways. The general principle is that many individuals cannot afford to count on unlimited elasticity in the habitual use of certain habits of adjustment, that instincts will be undermined by persistent misapplication, and the delicate balance of mental adjustment and of its material substratum must largely depend on a maintenance of sound instinct and reaction type."

The view of Adolf Meyer is given in detail in as much as it is by far the most hopeful from the point of view of both prevention and cure. If indeed personality is, to a large extent, the result of the habits we form, then both educators and parents should be in a position to form those habits which will pre-dispose to an adjusted personality and make impossible the development of those sets, attitudes and modes of reaction which are really the basis of dementia praecox. Since projection as a mechanism forms the basis for paranoid behavior, it should theoretically be possible so to train the child that he does not project his faults on other individuals and objects and thus withdraw from the act or his feelings of guilt and from the emotions accompanying them. He should accept himself as an unsuccessful agent, face facts, and gain his security through analyzing the situation to discover the cause of his failure to make an adequate adjustment. He should develop techniques which will lead to success on later occasions, or accept the fact that this is a situation in which success is for him impossible and seek other areas in which success will accompany his efforts. Paranoid dementia praecox is apparently pre-eminently a disease, the manifestations of which are the use of projection as a mechanism to escape from or to defend oneself from situations.

MANIC-DEPRESSIVE PSYCHOSES

The manic psychosis presents itself in three principal forms, the simple mania, the confused mania, and the delusional mania. The disease shows four fundamental symptoms, motor excitement, flight of ideas, morbid euphoria and irritability and highly impulsive reactions.

According to Kraepelin¹⁰ and others, the face shows flushing. The eyes are very bright and the individual looks unusually animated and happy. This is in contrast with the depressive psychosis in which the individual is withdrawn and depressed. It is interesting to note that most of the cases have shown unusual timidity and shyness before the onset of the disease.

In advanced cases, the clothing is mussed, over-decorated, and such as to draw attention to the wearer.¹¹ Judgment is peculiarly distorted, the association of ideas is uncontrolled. The individual is peculiarly insensitive to the seriousness of things which transpire. If he fails in school, he states that he can make it up easily. If he hears of the illness or even death of a member of his family, he may dismiss the news with a wave of his hand. Irritability is characteristic. The case bears no contradiction and will accept suggestions from no one. In marked cases the ethical sense is dulled to such an extent that the individual lies shamelessly, cheats when there is no cause, steals without reason. Buoyant excitement increases to the end of the phase and is then succeeded by depression.

In delusional mania the symptoms are practically those found in simple mania but the excitement tends to be more marked. The delusions frequently consist of ideas of grandeur. The delusions follow one another in rapid succession, though there may be one main delusion around which the others tend to group themselves.

In the case of confused mania there is great clouding of the conscious state. Most of the other symptoms follow those listed in simple mania.

¹⁰ Kraepelin, *Lehrbuch der psychiatrie*, Vol. II, Weygandt, *Ueber das Manisch-depressives Irresein*, Berlin klin. Woch., 1901, Numbers 4 and 5.

¹¹ Note relation of this phase to exhibitionism (Chapter V).

Depression usually follows manic excitement. It may occur as a first phase in which case, its onset is usually insidious. The individual becomes tired, loses appetite and sleep, is easily discouraged, feels sad and indifferent. The disease is characterized by inhibition and by a mood which is sad and pessimistic. The patient becomes vacillating in his decisions, loses confidence in himself, and needs constant reassurance.

It is interesting to note that the manic and depressive phases are only exaggerations of conduct which is frequently found in the adolescent. He appears to be highly ambivalent. There is a rapid swing from elation over some simple thing such as an invitation to a dance, a high grade in some school subject (less frequently the latter), and becomes depressed over equally simple experiences, a few words of criticism from a member of his fraternity, failure to receive a desired invitation, unfavorable criticism from his teacher. It is highly probable that, as has been stated in an earlier chapter¹² the wide variation in glandular functioning due to the introduction of the secretions from the sex glands is in some way related to the wide pendulum-like swing of emotions at adolescence. The relation of glandular changes to manic-depressive psychoses and to dementia praecox is still undetermined but research may find much in this field.

THE NEUROSES AND PSYCHOSES

There are other forms of neuroses and psychoses which may be found in the behavior of adolescents. They are not characterized by the marked disorders present in dementia praecox and manic depressive insanity. They

¹² See Chapters II and IV.

appear to have the following characteristics. The individual seems well. He has a good appetite and sleeps properly. His work does not suffer markedly, but the individual himself feels that his work has fallen off, that he is inhibited or blocked, that he tires too easily. He has vague feelings of insecurity and unhappiness, the source of which cannot be traced.

These neuroses are four in number, hysteria, which according to Janet¹³ is of various types, psychasthenia, neurasthenia, and the anxiety neurosis.

Hysteria. In case of hysteria, the individual may turn pale, experience vertigo or even appear to faint. He may show hysterical paralysis of any part of the body, be psychologically blind or deaf or even have convulsions without any apparent physiological cause.

A psychiatrist reported to the writer the case of a fourteen-year-old high school girl who developed serious headache and fainting in a Latin class. The student had previously experienced a year of failing work in this subject and was in the class the second time. It is not necessary here to go into the history of the case, but hysteria provided a means of escape from the class in which the individual felt marked insecurity due to previous failure. That hysteria does in many provide an escape from an intolerable situation or a situation for which the individual has developed no adequate techniques, the records of case histories plainly show. We have here again probably the functioning of a form of escape mechanism. Most authorities agree that the disease is functional and not due to lesions in the brain or spinal column.

¹³ Janet, P., *The Mental State of Hystericals*, G. P. Putnam's Sons, New York, 1901.

According to Rosanoff,¹⁴ the malingerer who consciously uses these techniques to escape may be differentiated from the hysteric by the following:

“(1) Results of treatment by persuasion, i.e., if persuasion fails to cure the case is not hysteria but malingering (Babinski). (2) A desire to be cured speaks for hysteria; the opposite indicates malingering. (3) The malingerer dreads examination; the hysteric welcomes it. (4) Hysterical manifestations bear the stamp of a certain genuineness which those of malingering lack.”

Neurasthenia. Neurasthenia is difficult to describe. The individual shows early fatigue. He tends to be irritable, may complain of symptoms such as backache particularly irregular and fluctuating pains or burning. There is usually an exaggerated response to stimuli. Cold is felt as colder and heat as warmer than in the case of the normal individual.

Psychasthenia. The individual suffering from this phase is known as a “constant worrier.” He has marked anxiety and fears particularly in regard to one idea or group of ideas. The individual is never amnesic nor is there disturbance of consciousness. In connection with psychasthenia there are often intellectual obsessions such as an irresistible desire to pronounce a word or words, to count objects. Other characteristic obsessions may be kleptomania, where the objects stolen are useless or such as could easily be paid for by the subject, dipsomania, or even pyromania.

The relation of this disease to the emotion fear needs further research, but certainly by its very nature it shows close association to some of the manifestations of fear

¹⁴ Reprinted by permission from *Manual of Psychiatry*, by Aaron J. Rosanoff, published by John Wiley and Sons, Inc., p. 173.

states. It is possible that here we have an illustration of a transferred fear state or of projection of a fear once felt in other connections now attaching itself to quite other situations.

The Anxiety Neurosis. The anxiety neurosis is best described in the statement cited by Brooks¹⁵ from the "Statistical Manual of the American Psychiatric Association":¹⁶

"A clinical type in which morbid anxiety or fear is the most prominent feature. A general nervous irritability (or excitability) is regularly associated with the anxious expectation or dread; in addition there are numerous physical symptoms which may be regarded as the bodily accompaniments of fear, particularly cardiac and vasomotor disturbances; the heart's action is increased, often there are irregularity and palpitation; there may be sweating, nausea, vomiting, diarrhea, suffocative feelings, dizziness, trembling, shaking, difficulty in locomotion, etc. Fluctuations occur in the intensity of the symptoms and acute exacerbations constituting the anxiety attack."

Here again we have possibly the functioning of a transferred fear state. These individuals may cause great anxiety and difficulty in society but rarely become serious enough cases to be segregated in a hospital. The prognosis in these cases is usually good provided they are not far advanced. The treatment takes the form of good mental hygiene and mental education.

The characteristics of personality difficulties and mental disturbances present in adolescence have been given not for the purpose of enabling the average student or teacher to diagnose, but rather in order that certain signs or symptoms may be observed with a view to having a

¹⁵ Brooks, F. D., *Psychology of Adolescence*, Houghton Mifflin Co., Boston, 1929, p. 487.

¹⁶ *The Statistical Manual of the American Psychiatric Association.*

complete physical and mental check-up made by a physician and a psychiatrist. General behavior in line with the discussions of types of personality disturbances given herewith should serve as a danger signal to those who come in contact with adolescents.

It cannot be said too strongly that no attempt at diagnosis of personality disturbances should be made by the layman, the teacher, or the beginning student in psychology or psychiatry. The handling of personality difficulties calls for the maturity and skill which can only be gained as a result of long and intensive training in psychology and psychiatry. The development of habits which will prevent the onset of personality maladjustments is the work of the parent and the educator. The diagnosis and treatment of such difficulties after these have developed is a field which belongs to the specialist alone.

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Chapter XIII

MORAL AND RELIGIOUS DEVELOPMENT AT ADOLESCENCE

THROUGHOUT history nations, communities, tribal groups, and families have argued in regard to what constituted ethical standards and moral behavior. What to one day and age constituted moral behavior of high ethical standard may be to another unmoral or immoral and unethical. To the Spartan boy a high standard of behavior, in one respect at least, comprised the ability to steal an adequate food supply without being found out. The classic story of the Spartan boy who stole the fox and allowed it to "eat his vitals" is an illustration of this point.

In modern times if one proceeds from one section of the same nation to another, one finds a variation in what constitutes moral behavior. A child in some farming communities in the United States may take at will fruit or vegetables from neighboring gardens. He is not considered a thief and often receives no punishment. He may even be laughed at and praised for his skill in raiding the neighboring garden. The child in a city for the same offense, that is the raiding of vegetables as grown in a small garden or as displayed in market, is considered a thief, is if caught taken to the Juvenile Court, and is fortunate if he escapes with no more than a severe reproof for his misconduct. In an outlying district in a nation whose higher social class had what we consider

sound ethical standards, it was considered socially so undesirable as to make of one an outcast to arrive at a barbecue as much as an hour early. On the other hand the possession of one or more illegitimate children was a commonplace, and no social stigma was attached to the parents. This variation in behavior from group to group and from age to age makes it difficult if not impossible to set a standard for ethical behavior except in terms of the good of society in this day and age and the welfare of succeeding generations. Behavior must be judged in terms of the size of the group, of the age in which it is a part, and of the section of the country in which it occurs.

The word morality is derived from the Latin word "moralis" which signifies merely manners, customs, or behavior patterns which fit in with the general standards of the group, in a word, conformity with the patterns which the society to which the individual belongs has accepted as beneficial.

While it is true that one may conform to such group standards in general and yet in thought or in actions not subject to group control be both immoral and unethical, the test of conformity to the group pattern is the one which is most universally accepted. There are many adolescents who, while they never receive punishment for infringements of the moral code, are nevertheless regarded by their fellows as "lacking in good sportsmanship," "sneaky," "double-faced," or as otherwise not conforming completely with ideal behavior, although they do nothing which is definitely detrimental.

Genetic Development of Control of Conduct. To the young child social sanction as mediated by external authority is the test of behavior. He considers that "good" or "right" which receives a smile and word of praise, or

which is allowed to pass unchallenged. He is constantly in the position of testing out the reactions of external authority. If there are within him the beginnings of what we in later life term "conscience," it is very little operative as a check on behavior.

By the time the child has reached five years of age he should have begun to react in terms of inner control, that is to say he should be deciding himself on the rightness of the actions in terms of what he has previously experienced as external authority's reactions to his behavior. Between the ages of five and eight the number of times in which internal checks are used should increase. At adolescence the checks should be largely those of the child's own knowledge of what constitutes right and wrong, "good" or "bad" behavior. At the same time his concepts of goodness and badness will change gradually until at adolescence they differ markedly from those of the early period. "Being good" was defined by a five year old as "eating my dinner, doing what mother and daddy say, and being quiet when there is company." Goodness defined by an adolescent was "helping the poor, playing fair, giving a hand where it is needed, telling the truth, and living up to one's ideals." The difference between the types of behavior described in these definitions is obvious, but the later type has developed from the earlier.

The adolescent will until the end of his life, unless he is a person of unusual independence, still receive and act to some degree in the light of checks from external authority. Even a ruler in modern times is checked by external authority as expressed by the reactions of his subjects. Authority as expressed by the voter governs to a large degree the activities of our elected representa-

tives to the senate, congress, the state legislature, and the city government.

The change, then, from external authority as the guide, to guidance from within is not absolute but largely in degree, and varies widely between individuals. It is entirely possible for an adolescent who has not been trained to make his own decisions, who has been controlled completely by the adults with whom he is surrounded, to be still in the pre-school period in regard to the need for external control. One has instances, and many of them, of high school students who study only when made to do so, who conform to the rules of the game only when constantly reprov'd and penalized by the referees, who come home at night only because they will be deprived of privileges if they stay out overtime. These belong to the unfortunately large group of individuals who adhere to the standards set for the common good only if they know that punishments will follow any infractions. There are yet others who have been so inadequately trained that they will "take a chance" even when punishment is practically certain to follow. It is entirely probable that this group is potentially criminal, though many of them may always, because of high intelligence or some other factor, succeed in evading the maximum punishment set by the law for offenses against society. These are the adolescents who cheat and are never found out, who appropriate property so skillfully that punishment never follows, who use the truth only when truth is necessary for their own advancement, and who at adulthood run businesses obviously unethical but always sufficiently within the law to escape the punishment meted out to individuals less successful but not less ethical.

Fundamentals of Moral Behavior. Moral behavior may

be on several levels, that is, an individual may behave in conformity with the welfare of the group because his habits are such that he cannot do otherwise, in which case the factor "intelligence" plays very little part; or he may behave in terms of conformity with the social good because the emotion "fear" is strong and keeps him in line with accepted standards of behavior; or he may behave in a truly moral manner because he chooses to do so. Though the behavior may be socially beneficial in the first two cases, only in the last case is the individual to be considered as conforming to high moral and ethical standards.

In order to behave in line with a set of high ethical standards, the accepted definition of moral behavior, certain fundamental elements are essential. In the first place it is necessary that the individual have an intelligence level high enough to reason adequately and to act in terms of his best judgment. This involves: (1) that he sees facts in their correct relation; (2) that he eliminates irrelevant elements; (3) that he acts in terms of the relations as perceived by him; and (4) that in case his judgment has been at fault he accepts full responsibility for his error and, facing the facts completely, either corrects such errors as he has made, or in some way causes restitution to be made.

Besides the ability to reason which in itself involves wide experience and those other elements discussed in an earlier chapter,¹ the individual must develop what are termed good habits. In the first place he must have the habit of withholding action until he has determined the relevant facts in the case, in a word, has reasoned, especially if the action be important. Impulsive acts, though

¹ See Chapter IX.

based on what is called a good motive, may be socially as dangerous as acts derived from criminal motivation.

He must have a sufficient set of good habits so that in the less important situations he will act in the light of social good without the necessity for long and complicated reflection. These and other habit patterns are essential to moral behavior.

He must have knowledge and wide experience, for without a perspective on the group in which he functions it is impossible for him to separate the relevant facts from the irrelevant. His judgments of persons and things are apt to be based upon the immediate situations rather than upon many similar or diverse situations, each having elements which help to interpret the present. As an example of the necessity for experience in the interpretation of his own activities, one may take the adolescent who knows something of child psychology and human relations in contrast to one who flounders about surprised by his own emotions and disturbed by physical changes which he has not adequate information to interpret.

He must have set up throughout the whole pre-school and pre-adolescent period standards of conduct, and have habituated himself to behave in line with these. He must have high ideals, but he must not expect the whole world to conform to these. Ideals should not be formed apart from reality. Too wide a gap between the ideal and the real world makes for insecurity which will inevitably call for the use of escape mechanisms. Escape mechanisms as forms of behavior, except where these are within the normal limits, are in themselves probably unmoral if not actually immoral. They involve escape from facing facts, and facing facts, as has been said, is one of the fundamentals of moral behavior.

The individual must have, finally, the ability to give overt expression to ideals. It is one thing to feel that one should never spread scandal, and quite another to avoid telling a story which will reflect upon one's class-mate or friend. It is one thing to feel that honesty is essential in one's dealing with individuals and on that basis to pay back money owed and to pay bills, but quite another thing to act in terms of honesty in what one says or in the avoidance of cheating or the use of evasions. The unfortunate types of Sunday school morality which believed in the use of copy book maxims as pure verbalizations instead of as guides to action is only one example of ideals which did not go over into overt action either in terms of expression or in terms of the inhibition of acts not for the social good.

Since it is necessary that each adolescent function in his own group and at the same time be conscious of the needs of groups outside of his own, certain requirements may be set down for his training. He should be given through reading, conversation, and actual experience, wide contacts with different types of situations, and training in looking for relevant and disregarding irrelevant elements in making decisions which will be guides either to further thought or to overt activity. He should have a thorough cognizance of and training in the application of desirable social standards for conduct. He should have had from the beginning the opportunity for choice based upon such knowledge of the elements of the situation as was possible for his age and his intellectual level. He should have an adequate number of habits of a socially adjusted sort to take care of simple situations in which no complex thought is necessary and in which

long delays in decision would be harmful rather than helpful.

Morality is not an instinct. It is the product largely of the factors and elements described herewith. As such it depends for its development upon the parent, the educator, and those forces in the home, school, and community which play upon the child, checking his activity on the one hand and facilitating it on the other.

One may examine rather closely into the adolescent's concepts of certain elements involved in moral behavior, for example, his reaction to truth and his reaction to ownership of property. To many adolescents truth is one thing as it applies to situations in which it concerns his family and his friends, and quite another as it applies to strangers or to individuals whom he considers as prying. It may indeed be one thing as applied to his friends, and quite another as applied to his family. The writer has had numberless occasions to discuss the matter of truth with adolescent boys and girls between the ages of fourteen and eighteen. It was with some surprise that it became evident, even in groups supposedly highly trained in standards of truth, that they felt it in no way a lowering of their ideals if in response to a prying question from a stranger they made a good story based as little as possible on fact.

As a group they seemed to feel that it was actually virtuous to tell a story to protect a member of their gang or group, and they had no hesitation in so doing. One member of a high school fraternity had stolen the examination questions and therefore had been able to pass unusually well. In spite of grilling no one of his group, though all of them knew the truth, would tell on him. On the contrary one of them said, "I lied like a man to

save him." As a group, however, they punished him themselves for this obvious infraction of what they considered good sportsmanship.

A student in a preparatory school, member of a sorority, returned late at night to the dormitory, an offense which would have resulted in her expulsion had the authorities been able to prove it. Her room-mate and several others came to the rescue and gave her a complete alibi, though in so doing each one had to tell obvious untruths. The group as a whole felt that they were brave and good sports rather than that they had behaved in a way which under most other circumstances would have been followed by complete social disapproval.

It is interesting to note that where the adolescent does not trust or have complete confidence in his family, the same situation occurs. Though otherwise normal and fairly well developed as to ethical standards, he "pulls the wool over his family's eyes" and is aided in so doing by his friends. Neither he nor his friends seem to regard this as a serious offense, whereas had the untruths been told by one member of their own group to another the consequences which followed might have been drastic.

Truth to some adolescents is then one thing as regards one's friends and those whom one trusts, and a quite different thing as regards strangers, particularly prying ones, and those whom the adolescent does not trust.

On the other hand there appears to be in many adolescents the development of a peculiar literalness which forces them to qualify their statements unduly. They will say in telling a story, "He went down town at five o'clock, at least it was about five o'clock if not quite, that is it was not more than fifteen minutes of or fifteen minutes after." Such forced literalness may even become annoy-

ing. It has been interpreted by some psychiatrists as meaning that the child really wishes to tell untruths and is over-compensating by craven literalness.

The strong drive to social approval and desire for success in the social group make of adolescence a time in which the child is learning the exact degree to which truthfulness is essential for acceptable social behavior. If he finds that by flattery involving a certain amount of untruth, by social white lies, and other falsifications he achieves success, these will be the patterns which he adopts at adulthood, and the tendency to too-great literalness will drop out.

On the other hand we have the wholly dependable and responsible adolescent who, whether or no social success is the result, refuses to vary from the truth, and whose word is through adulthood accepted at its full value.

It cannot be stressed too strongly that success should not follow upon falsification. The best that can be said for social white lies is that they tend to make the wheels of society move more smoothly, a result which should if possible be arrived at by other means. Evasions are to be classed with social white lies and other forms of variation from truth.

The exact extent to which the absolute truth may be told depends to some extent upon differences in situations, but the more nearly the adolescent thinks and behaves in line with what is known to be veracious, the more sound will be his standards and probably the better the mental hygiene involved.

Attitude toward Property. We have discussed in some degree the varying attitudes toward property in varying civilizations, but under present conditions a respect for property rights is essential. At the beginning of the ado-

lescent period, unless long training has made the child certain of the fact that his property is his own and that of other people is their own, to be shared only with their permission, a certain lack of regard for property rights persists.

In the period immediately preceding adolescence, property rights frequently depend upon the old standard of "finder's keepers." If one goes from one part of the United States to the other, one finds various phrases expressive of this attitude. "I divvy" indicates I take possession of, as does "I finnywhackit." The saying of some such phrase over an object found is adequate to give the individual who says it first claim, and is accepted by his mates unless the property happens to belong to them or to someone whom they know well. One frequently hears complaints from teachers that children do not return objects found. Inasmuch as throughout the history of the race the discoverer was given rights over the thing discovered (Spain over America, and so on), this attitude is hardly to be wondered at.

By mid-adolescence there should be little appropriation of property except where rules and regulations govern a game, or some such situation. Where the adolescent has not been trained from the pre-school period on, and where this training has not been followed up at adolescence, the child remains in an earlier stage in regard to respect for property. He may even be in the pre-school period.²

² There appears to be a growth stage beginning roughly at five and extending to seven years during which a tendency to take other people's property is heightened. Many children form a habit of appropriating what they wish at this time because they are unchecked or for some other reason, and become what is to be called in the pre-adolescent and adolescent period "thieves."

Group Games as a Factor in Developing Moral Behavior. Group games have an important function in the development of high standards of conduct. The adolescent is individualistic and resistant to authority. He wishes to be outstanding and receive applause. Acting only in the terms of the tendency to self-assertion, he would sacrifice weaker individuals to his own success and would seek every opportunity to be the center of the stage, even if this required a certain amount of evasion or of tactics not wholly honest (for example, cheating to raise his score in games). Group games cultivate his willingness to sacrifice himself for the good of the team. They also train him to remain in the background in order that his group, as represented by the team, may be successful. This acts as a curb on a too strong functioning of the drive to be the center of attention and to have power over persons and things.

Resistance to authority, also a phase of the instinctive drive to self-assertion, is checked by the necessity for obedience to the rules of the game. The adolescent will obey slavishly the rules set down by the athletic director and by the manual of the game which he is playing, while he will resist domination in most other forms.

Good sportsmanship involves many of the elements described above, but it also involves playing absolutely fair and losing gracefully. To be a good loser, to face failure without the use of escape and defense mechanisms but with the use of analysis to see where one has failed, and to develop techniques which will make one better able to meet the situation next time, are not only indications of emotional maturity, they also involve high standards of moral behavior.

In order to be successful the individual must work for a high degree of skill. This skill, however, is not to be used solely for himself, but to supplement that of the other members of the group. Only in a few of the group games will his individual skill make him outstanding. Probably one reason for the immense interest in baseball is that it involves both group cooperation and recognition of individual prowess. The good batter makes an individual reputation for himself, but while he is playing his position on the field he works as a part of the group.

Emotional control is an important factor in success. The individual who "loses his head" in games has very little chance of playing a good position. He must control his emotions to such an extent that, even when he is insulted by the coach or by the members of the opposing team, he plays an accurate game.

As against the subordination of the individual to the group, group games have the antithetical effect of developing leadership in those best fitted to exercise it. The individual learns how to direct as well as how to obey. He develops an understanding of human behavior which enables him to exercise group control on a cooperative basis, while at the same time he respects the contribution of each individual to group success. Acknowledgment of the worth of each individual contribution, even though the person differs widely from oneself, is also a factor in moral behavior.

Loyalty to one's team mates, to the school for which one plays, are basic in the development of one's loyalty to one's city, one's state, and one's nation.

Group games, then, play a significant part in both the moral and the physical development at adolescence.

RELIGIOUS DEVELOPMENT

Religion has variously been defined as an instinct present in all races and groups of men; as a form of escape by means of which we place our burdens on forces outside of ourselves with the assurance of release from responsibility; as the opening of the self to the deepest of outside influences; and as dependence upon a larger spirit in terms of whose ideals one conducts one's life. While these definitions vary, each contains elements present in what we mean when we refer to religious experience. Religion is certainly a dependence upon a power outside of one's self, it is equally a desire for help or consolation beyond that which the world can give. It involves the development of a set of ideals for conduct in line with the best which the day and age teaches, or even beyond that which is commonly thought to be best. It contains an element of reverence on the one hand, and of trust and confidence on the other.

The awakening of religious sense is commonly associated with adolescent development, and is stated by some authors to form one of the most significant drives to conduct from the onset of puberty to and often throughout adult life.

Need for Religious Experience. That need for religion should develop at adolescence is not strange, inasmuch as if religion is, as has been stated by many authorities, a potent aid in the development of security, the adolescent with his many insecurities needs the support of religion more than ever before. The desire for social approval is peculiarly strong at adolescence, but at the same time so is the adolescent's perception of his own inadequacies in the face of a complex social organization.

By himself alone he may be unable to succeed, but aided by power beyond his own, success appears more probable. This is far from being the only factor in the development of the religious sense at adolescence.

This period appears to be characterized by high ideals. Faced with the number of instances in which those whom he trusts do not live up to the ideals which they themselves have taught, the adolescent tends to take one of two forms of behavior. Either he may throw over wholly all adherence to religious creed and dogma, or he may fall back upon religion as the one factor which will enable him to meet a world in whose conduct his faith is fast diminishing. In the latter case this need unites with the desire for experience which will bring calm out of conflict.

The emotional life of the adolescent appears to be at a higher state of tension than at any preceding period except perhaps the pre-school. Some outlets for this emotion must be found. Since the religious sense and some form of religious observance seem to be present in all people however primitive, it is rather to be expected in a percentage, at least, of adolescents. The emotion will find its outlet in strong religious conversion, or in strong adherence to religion as a source of strength and a help in living up to high ideals. As a normal outlet for strong emotion, religion would seem to be peculiarly suited at the period of adolescence and beyond.

Causes of Adolescent Doubt. As another phase of adolescent behavior we find the opposite type of expression. Many adolescents heretofore firm in religious observance begin to experience doubt. The main bases on which these doubts are founded are probably contact with individuals whose standards of right conduct differ from those which the adolescent has been taught to be good, and scien-

tific teachings which appear to run counter to basic doctrines in religious teachings.

As was stated in Chapter I, religion for the adolescent in primitive groups and earlier civilizations is a relatively simple matter, for the tabus are observed by all right-thinking members of the tribe. What constitutes a "good" and well-behaved person is laid down by rule; what constitutes an evil one is also laid down. One has no difficulty in observing the right pattern if one wishes to be "good." Punishment and social ostracism tend to follow rapidly upon what is determined by the tribe or group to be "bad" behavior. In the present civilization, as in other complex ones, it is difficult to determine what constitutes good and bad behavior. It has been pointed out in a discussion of moral conduct that standards vary extremely widely. The adolescent tends to become confused and to doubt that any standards exist.

He has been taught certain doctrines which his inadequate experience does not enable him to fit in with the scientific teachings found in biology, psychology, and other sciences. Because he cannot see the possibility of the validity of certain religious teachings in the light of scientific findings, he tends to "throw over" all religious teaching. This tendency is heightened by the method of presentation used in some of the sciences. Adolescents who have never before doubted are made to doubt by having their attention called to what appear to be inaccuracies or impossibilities. They are not taught the corresponding material which would enable them to interpret such differences.

Finally the adolescent may discover, as all thinking individuals do, that his ability to meet the new and often exacting demands of society depends largely upon

his own capacities and abilities. This comes as a disappointment to individuals who have been taught to depend largely upon external aid for the solution of their problems. The foundation of many moral philosophies is that the individual should depend upon himself for the major part of his accomplishments, but to the child who has been taught to depend upon external aid, first by an over-guarding parent and then by the teachings of religion, necessity for self-dependence comes as a shock. Many parents do not understand the basic principle in child care, that the individual must be allowed to overcome his own obstacles wherever possible without external aid.

All of these factors may produce such strong adolescent doubt as to lead to the complete overthrow of all religious teaching. Unless the individual then lives up to such standards as make for the welfare of the individuals and groups with whom he comes in contact, his conduct becomes immoral in the large sense of the word and irreligious.

Adolescent Training. It cannot be emphasized too strongly that aid should be given in bridging the gap between pre-adolescent and adolescent religious attitudes. Instead of attempting to tear down all religious beliefs in the teaching of physical sciences, every attempt should be made to give the adolescent material in terms of which he can interpret earlier religious teachings and beliefs.

No forcing of religious doctrine and dogma should occur, since resistance to authority is a characteristic of the adolescent. He should be given fully and freely material for his best thinking, and should be helped wherever necessary in the development of standards of conduct

and of religious beliefs which will fit in with the intellectual and social patterns as an adolescent and as an adult.

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Chapter XIV

THE HYGIENE OF ADOLESCENCE

THE adolescent has for generations been regarded as an individual who is adult when the home and the school desire him to be so, and who automatically becomes a child when again the school or the home wishes implicit obedience or some other type of childish behavior from him. The latter attitude unfortunately does not extend to the protection of the child's health. He is supposed to be "old enough" to take care of this for himself, a supposition which is usually erroneous. Spurred on as he is by the desire for power over persons and things as manifested in the wish for social prominence, for skill in all types of athletic activity, for the chairmanship of committees, and for other activities which will give an outlet to these drives, the adolescent tends to over-exert rather than to rest.

The complexity of the present civilization has increased the number of things in which the child may excel beyond the mental and physical capacity of most adolescents. Athletics, arts and crafts, dramatics, dancing, performance on various musical instruments, short stories, and poetry are only a few of the fields in which the adolescent may secure extra-curricula training. Added to this we have the desire of parents to give to their children every possible advantage. If one looks at the schedule of the average educated adult, one finds that he belongs to several organized groups, each one of which calls for a

part of his time. This situation is also true for adolescents. They belong to the high school band, the high school glee club, the dance club, one or more other social groups, the church with its manifold activities, the school team, or the group which cheers and gives support to the school team. Added to these are the activities in pursuit of the so-called accomplishments referred to above.

The degree to which the constant pressure of appointments operates against the need for rest will determine to a large extent health status during late adolescence and adulthood. The writer has for some years been collecting schedules of adolescents, a sample one of which follows:

"A girl fourteen years and six months of age was exhibiting temper tantrums and periods of extreme negativism during which she resisted all authority. She was called at six o'clock in order to enable her to practice one hour before she left for school. At 8:00 she left for school (a school for superior children), reaching there at 8:30. From 8:30 to 11:30 she had classes. Between 11:30 and the next class, forty-five minutes were left for luncheon in the school cafeteria, in which the children had to stand in line for twenty minutes before being served unless they rushed from class without washing their hands. Study periods and class work filled the afternoon until 2:30. At 3:00 the girl returned home. On three afternoons a week she had music lessons; on one a dancing class; on another an elocution lesson. On Saturday morning the dramatic club met. Every evening it was necessary for her to study two to two and one-half hours to maintain her place in the class. She belonged to the high school basketball team which practiced most of Saturday afternoon and free time on the afternoons before and after her music lessons. On Sunday she was required to attend Sunday school and church. Finding she had a free afternoon on Sunday, her mother placed her in a nature study class 'to improve her mind'."

In the whole schedule no time was allowed for rest or for hobbies or for time when the girl might amuse herself by means of her own initiative and resourcefulness. It can hardly be wondered at that one of the criticisms brought against the "younger generation" is that it needs to be amused. With no time left in the schedule for the development of his own initiative and the use of his own resources, the adolescent forms the habit of expecting to be amused and of rushing from place to place. In other schedules "the movies" take up three or four afternoons. These are subject to the same criticism, that they amuse without calling for any effort or initiative on the part of the observer. The adolescent may also be overestimated emotionally to such an extent that needed rest cannot be taken.

If one were to list a schedule which included the minimum requirements for the average healthy child, it would probably be as follows if he is to maintain health:

Approximately nine hours of sleep, more if required.

One hour¹ a day exercise out-of-doors. The amount and kind of exercise should depend upon the result of a physical examination made by the adolescent's physician.

Fifteen minutes of rest before luncheon and before dinner.

Two hours a day free time to be used for the child's hobby, for reading, and for other constructive activities which the adolescent himself chooses.

Not more than two to two and one-half hours study outside of school if study hours are provided in the school curriculum.

¹ This is a more conservative time allotment than is usually given, but this is a minimum, not an optimum, requirement.

A portion of the day devoted to home responsibilities and family companionship.

*Approximately Nine Hours of Sleep.*² Ten hours is the median estimated amount of sleep for children at age twelve, nine and eight-tenths at age thirteen, nine and three-tenths at age fourteen, nine at age fifteen, as stated by Brook's method of combining medians of Duke, Bernard, Chapered, and others. The actual amount of sleep taken by American school children, according to Terman's results, differ only slightly from this. Recent research has indicated that more sleep is required by the adolescent than we have heretofore assumed. While sleep is an individual matter and varies from child to child so that one may need ten or even eleven hours, individual sleep requirements should be met. One may assume that one night a week or on rare occasions two, the adolescent may stay up later for school or social functions, but sleep should, if possible, be made up by staying in bed somewhat later the next morning. The adolescent who claimed that it was all right for him to stay up late every night during the week because he could sleep until twelve o'clock on Saturday and Sunday knew neither the physiology of sleep nor the hygiene of adolescence. Particularly in communities in which stimulation is high, such as for example large cities, sleep should be insisted upon.

Daily Exercise Out-of-Doors. It is hardly necessary to stress here the value of exercise during the growing period. In the first place, as has been said, the neuromuscular patterns in the early adolescent period are not adequate to take care of adolescent increase in muscle tissue. In order to gain muscular control both super-

² Terman, and Almack, *Hygiene of the School Child*, pp. 371-376.

vised exercises and the so-called natural exercises, walking, swimming, skating, and the like, should be engaged in. Exercise helps to do away with a poor posture. It stimulates the entire body and improves the digestion, circulation, and respiration as well as general muscle tone.

No exercise should be continued to the point of serious fatigue. A boy, age sixteen, played basketball for a period of two hours and a half without rest, except the small amount provided between halves. The effect of this was particularly noticeable in the enlargement of the heart, but other vital organs were also seriously affected. When an adolescent complains of fatigue or "feeling tired all the time," the amount and kind of exercise should be carefully studied in the light of the report of the child's physician.

Fifteen Minutes' Rest before Luncheon and before Dinner. Physicians and nutritionists are fairly well agreed that all individuals, particularly during the growing period, should rest or engage in quiet activity before eating. The effect of excitement has already been described in connection with the emotions.³ The adolescent who comes to the table tense and excited is approaching food with the entire digestive system functioning in the manner peculiar to strong emotional states. Digestion is automatically interfered with. It is a well-known fact that fatigue produces toxins which rest enables the body to take care of. Fatigued young children frequently refuse food, as do excited ones. It has not been stressed sufficiently that these same refusals of food may characterize adolescents in a similar physical state.

Study Outside of School. The number of hours study which should be permitted outside of school is an open

³ See Chapter IV.

question. There are authorities who assume that no study should be required if there are periods of supervised study during the school day. Others feel that as much as three and one-half to four hours should be required. It is probably safe to take the conservative position, that a child who has periods of supervised study during the day should not have more than two and a half hours' study outside the school. If he is a rapid reader or one of those learners who masters material rapidly and retains it over long periods, he will need less than two hours and a half unless the curriculum is an extraordinarily full one.

Home Responsibility and Family Companionship. This belongs in a discussion of physical health partly because it is important from the point of view of mental hygiene, but also because a crowded schedule of home duties is as serious a matter as a crowded school curriculum. Many children have so many home duties that there are not enough hours left for even a minimum requirement of out-door exercise or other important activities. On the other hand there are many adolescents who have no part in carrying responsibilities of the home. Because of his make-up the adolescent wishes to feel important, partly because of a desire for power over persons and things and partly because of the tendency to take care of younger and weaker individuals which is still operating at adolescence and which plays a part together with his emotional life when this matures sufficiently to take in the community, the state, and the nation. In primitive societies the adolescent had a definite part in the welfare of the tribal group. In earlier stages of our own civilization the work of each individual member of the family was essential. If the family was to succeed or even, in many cases, to survive in the agricultural period, even the young child

had to take his part in the production of goods and the sharing of services. Today the better off the family economically, the less significant the part played by the adolescent in family welfare. Therefore every effort should be made to heighten rather than to lessen this sense of responsibility for family welfare and for the welfare of the community. A friend of the writer had stayed away from home as many hours as possible until he was given the job of making out the family food budget and seeing that the purchases kept within the budget set. So interested was he in his part in family welfare that he hesitated to leave for the Boy Scout camp, and when he did leave assured the family that he would rectify any mistakes which they had made during his absence when he returned. Functioning as a necessary unit of the family group develops the sense of responsibility stressed by many authorities as one of the most desirable of the character traits.

Many adolescents find themselves adrift from the family group and feel at a loss because they have too little dependent upon them. In one case of adolescent suicide (a phenomenon which fortunately occurs rarely in this country) the adolescent stated in the letter left the family, "You don't need me. It doesn't matter to you whether I live, you'll go on just the same. I'm too tired to keep on unless you need me." The suicide was apparently the result of serious conflict, but the attitude expressed, that of the family's ability to take care of itself without him, was one that the boy had spoken of a number of times.

If possible, a certain part of the day should consist of activities in which the whole family have a share. Many adolescents gain great security from the feeling of family solidarity and from home responsibilities.

Nutrition and Diet. It would be unwise to leave out of a discussion of health a treatment of the minimum dietary requirements for adolescence. While the foods valuable for the pre-adolescent period are also valuable for adolescents, the daily calorie need increases noticeably at years twelve to sixteen. In boys the total daily calories required may be as high as 4000, whereas in girls it sometimes reaches well above 3000. There is, of course, wide individual variation in the total calorie need per day, but it is well to be certain that a balanced diet in adequate amounts is provided. We have already noted the fact that there are, at least in many children, peculiarities which are very noticeable—the fondness for pickles in combination with sweets, the unusual combination of sweets chosen.⁴ Certain researches have indicated that where a balanced diet is supplied there is less tendency to choose peculiar combinations of sweets or of sweets and sours.⁵ The following would probably be agreed upon by most authorities as minimum essentials for an adequate diet for adolescents:⁶

It is equally important during adolescence that the needs of the body for growth and regulation of body processes be considered. These needs are chiefly supplied by proteins, vitamins, and minerals. According to Sherman⁷ and Rose⁸ the standard

⁴ See Chapter I.

⁵ One has only to note the choice of "soft drinks" and ice creams made by youths to be aware of the extraordinary combinations which adolescents choose. In one of these chocolate sauce, cherries, nuts, marshmallows, bananas, and three kinds of ice cream are combined.

⁶ For all of the following material on adolescent nutrition we are indebted to Miss Eleanor Maclay, Professor of Nutrition at the School of Household Administration, University of Cincinnati.

⁷ Sherman, Henry C., *Chemistry of Food and Nutrition*, 4th edition, The Macmillan Co., New York, 1932.

⁸ Rose, Mary S., *A Laboratory Handbook for Dietetics*, 3rd edition, The Macmillan Co., New York, 1929.

protein requirement for older children cannot be stated as definitely as the energy requirement. It is believed, however, that if 10-15% of the total calories are in the form of protein and if the food is appropriate in kind, the need will be supplied. Proteins from animal sources (milk, eggs, and meat) are the best.

Carefully controlled experiments with children have indicated that about one gram of calcium and one gram of phosphorus should be allowed per day. Recent research has shown that copper and other factors as well as iron are essential in hemoglobin building, but more information is needed before setting a standard for the iron requirement. For the present at least as much iron per 100 calories should be provided for the adolescent as for an adult. The average adult allowance has been estimated to be .015 grams per day. In the case of vitamins also, further investigation is necessary before definite standards can be given. Meanwhile liberal portions of milk and its products, fruits, vegetables, and eggs (excellent sources of vitamins) should be eaten daily.

According to our present knowledge of nutrition, the adolescent's needs will be supplied if the diet for the day includes:

- 1 quart of milk (as a beverage and used in dishes).
- 2 large servings of vegetables besides potatoes.
- 2 large servings of fruits (1 fruit or vegetable raw, or tomatoes, fresh or canned).
- 1 serving of whole grain cereal or breakfast food or bread.
- 1 serving of meat, fish, eggs, cheese, or other protein rich food (meat or egg desirable because of iron content).

The balance of the calories from concentrated foods—fats, cereals, wholesome sweets.

A typical day's menu follows:

Breakfast

Orange, 1 large.....	100	calories
Shredded wheat, 1 biscuit.....	100	"
Cream, ½ cup (18%).....	200	"
Milk, 1 cup.....	170	"
Sugar, 1 teaspoon.....	17	"

Breakfast—(Continued)

Toast, 2 slices.....	100	calories
Butter, 1 tablespoon.....	100	"
Jelly, 1 tablespoon.....	50	"
	<hr/>	
	837	calories

Luncheon

Escalloped rice and cheese, 1 cup.....	250	calories
Whole wheat bread, 2 slices.....	100	"
Butter, 1 tablespoon.....	100	"
Tomato salad with mayonnaise.....	200	"
Cake, 1 piece (2½ inch cube).....	250	"
Cocoa, 1 cup.....	200	"
	<hr/>	
	1100	calories

Dinner

Roast beef, 1 large slice.....	200	calories
Mashed potatoes, 1 cup.....	200	"
Buttered carrots, ¾ cup.....	100	"
Cold slaw, 2/3 cup.....	65	"
Bread, 2 slices.....	100	"
Butter, 1 tablespoon.....	100	"
Milk, 1 cup.....	170	"
Canned apricots, 3 large halves and 2 table- spoons juice.....	100	"
Oatmeal drop cookie.....	100	"
	<hr/>	
	1135	calories

Total calories for the day, 3072.

Probably an excellent method of meeting both the social need of the high school boy or girl and the dietary need would be to supply a light afternoon luncheon, which his or her comrades could share, distributed among the homes of the various children in the group.

Responsibility of the Home, School, and Community

for Physical Health at Adolescence. It is almost platitudinous to say that every adolescent should have a complete physical examination at least once every six months, and that an additional check-up should be made if he appears to be unduly fatigued or to tire easily. A regular schedule should be arranged which allows for the minimum essentials listed herewith. The parents should expect the school to provide adequate seating and lighting, sufficient periods before and after luncheon for rest and for observing the general principles of cleanliness which should be taught as a part of the regular school routine. The school should also be expected to provide, wherever possible, opportunities for group game work. The parents should provide space for out-door exercise, or find safe space provided by the community. They should provide for rest during the day and for the pursuit of hobbies in which the child shows an interest. The community should supplement the home by providing such places for out-door play as are necessary, places for social life, and opportunities for amusement of a healthful and stimulating sort.⁹ It is again platitudinous to say that pure water, adequate garbage and sewage disposal, purity of milk and other food supplies, adequate public health service which will prevent and control communicable disease, and training in safety for children of school age and industrial safety for adolescents who work, are all community responsibilities.

SOCIAL HYGIENE

In an earlier chapter we discussed somewhat at length the manifestations of the sex instincts at adolescence. It

⁹ The results of the Payne Fund Research on Motion Pictures should be studied in this connection.

was then noted that sex was one of the dominant interests of the period from twelve to sixteen years of age, and that adequate knowledge of and emotional adjustment to sex were necessary. This brings up at once the problems of sex education. According to Bigelow this may be divided into two groups, those which are constructive and those which are preventive. Again according to the same author, constructive education has to do with the building up of healthy attitudes toward sex and wholesome ideas and ideals about sex. The more knowledge which the adolescent has given in an entirely unemotional and, as far as possible, scientific manner the less apt is he to develop peculiar sex practices or perverted and unwholesome interest in matters which have to do with sex. Such information may be given through the biological sciences, it may be given in the child's home by the mother or father, or it may be given by a Girl or Boy Scout leader or some other person of fine character in whom the adolescent has confidence and to whom he will talk freely. A particularly good situation would probably obtain if the adolescent could gain and integrate information and wholesome attitudes from all of these sources.

This education should not be given by any one who is emotionally involved to such an extent that he or she considers sex peculiar, unwholesome, sinful, or in any way except as a natural phenomenon. If the parental attitude is such as to cause embarrassment or unwholesome attitudes on the part of the adolescent, the education should take place in the school or through some wholesome minded group leader. If the instruction can be given wholesomely and scientifically by parents, it should begin with answers to the questions which most children ask in the pre-school period. Later further information can be

given in answer to the same questions. These usually recur between eight and nine years of age, and again in early adolescence. This is probably the best way in which to have the education go on. Sex education should not go on apart from other forms of education since the manifestations of this instinctive tendency are only a part of the drives dominant during adolescence and adulthood. Studied apart from life as a whole, sex tends to be regarded as unusual, and to have added to it a certain peculiar aura which makes sex education more difficult.

That a full knowledge of sex is necessary by adolescence has been demonstrated in the cases of countless adolescents with conflicts of varying degrees of seriousness brought on by misinformation in the sex field gained from their comrades or other sources. It has also been demonstrated that where a morbid interest in sex causes the adolescent to write obscene notes and to draw obscene pictures, a full and free answering of all his questions by an older person, preferably one trained in the social hygiene field, clears up the difficulty almost at once. Such information is, as far as we know, preventive as well as constructive. According to Bigelow and others, some of the problems which indicate a need for prevention are promiscuity, unwillingness to live according to the accepted code of sex morality, vulgarity, marital maladjustments due to ignorance or other causes, and venereal disease, which is in the main the result of promiscuity.

Adequate knowledge is not the only requisite for healthful adjustments in the sex field. These are also dependent upon the type of training which the child receives through his entire life.

In the first place, since the tendencies associated with

sex are particularly strong at adolescence and in earlier civilizations had been allowed full outlet, the ability to inhibit undesirable behavior is essential. Children who have not been taught what is popularly termed self-control, that is, the ability to inhibit undesirable reactions, faced by the strong drive to sex activity are apt to break over such restrictions as are set by modern society. High ideals of social conduct are also the result of long training. They presuppose that the individual, no matter how strong the stimulus, will not act in a way detrimental to social welfare. If the child has been taught throughout his life that he is the most important individual in the social group, and has not been given a sense of responsibility to that group, he is again apt to break over not only in the field of sex but also in the other fields which require inhibition of undesirable responses. Those standards of conduct which underlie sound character are essential in all phases of adolescent behavior and in none more so than in the sex field.

Prevention of those activities which will make for physical ill health, such as excessive masturbation, depend in part upon training. They also depend upon certain conditions which can be provided. (1) As with the pre-school child the clothing should be loose and comfortable, and should not be such as to cause irritation by rubbing. (2) The adolescent should be kept busy at interesting activities which do not stimulate either the sex organs or the ideas associated with sex. Such occupations as going to motion pictures which depict immoral living or stress sex unduly tend to stimulate. It hardly needs to be stated that attendance upon certain types of plays, musical shows, and motion pictures causes unusually strong stimulation to sex ideas and centers attention upon

sex activity. (3) The child should sleep alone under warm but light covering. Care should be taken that the covering should not be so warm as to overheat the child. (4) High urine acidity and such other irritating conditions as will attract attention to the sex organs should be prevented. Constipation appears to be one of these stimulating conditions. (5) There should be healthful out-door exercise to take care of energy which must have some outlet, and to keep the vital organs in healthful condition. (6) The child should be given full explanations as to the physical processes which occur during adolescence, that is seminal emissions in boys and menstruation in girls.¹⁰

MENTAL HYGIENE

The personality difficulties have been treated at such length in Chapter XII that it is necessary to add here only a few additional points.

Maladjustments Dating from the Pre-adolescent Period. It is rare indeed in the study of personality difficulties that one finds a case where these have developed solely in the adolescent period. Where such cases occur, they are the result of some nervous disease or some extraordinary

¹⁰ It is impossible in this text to enter into a fuller treatment here. For further discussion of hygiene in these fields see the following references:

Bigelow, M. A., *Educational and Hygienic Problems*, Funk and Wagnalls Co., New York, 1924.

Blanchard, Phyllis, *The Adolescent Girl*, Dodd, Mead and Co., New York, 1924.

Exner, M. J., *The Sex Factor in Character Training*, Journal of Social Hygiene, Vol. 10, pp. 385-396.

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Richmond, Winifred, *The Adolescent Boy*, Farrar and Rinehart, New York, 1933.

Richmond, Winifred, *The Adolescent Girl*, The Macmillan Co., New York, 1930.

phenomenon. In general it is individuals who have had poor mental hygiene training from infancy to adolescence who show marked maladjustments during the adolescent period. Children who have been taught to face facts clearly, to make decisions based on well thought out plans, to inhibit undesirable responses, to deal with situations instead of to worry about them, who have been kept free from unusual and morbid fears, and who have learned that work and healthful play are not only desirable but result in highly pleasurable reactions, those who have learned to be a part of the group on a cooperative basis, are rarely troubled by disturbing conflicts or emotional upsets at adolescence. It is usually the individual who has been over-dependent, who has been surrounded by too much affection, who is narcissistic in his trends or fixated at some other early emotional level, who has used escape and defense mechanisms instead of facing facts and adjusting to them, who has not learned group cooperation, that develops marked personality difficulties at adolescence.

With these facts in mind one may add a few essentials for continuing the mental hygiene program through the adolescent period and through adulthood. These elements in a mental hygiene program may be listed in part as follows: interesting work which will give adequate outlet for constructive ideas and activity, social contacts leading to the development of friendships and interesting acquaintanceships, healthful recreation, wide interests, a series of habits and skills which will enable the individual to meet social situations adequately, wise home treatment which will allow freedom of judgment and independence of action wherever these will not result in serious harm to the child, and such home guidance as will enable the ado-

lescent to overcome his own obstacles and grow into a more complete control of his own reactions with increasing maturity.

Where the adolescent has had wise training in home, school, and community from infancy through the pre-adolescent period and is surrounded by the conditions listed above, sound mental hygiene will usually result except in those cases who by hereditary predispositions or because of environmental injury are unable to adjust themselves to the complexities of society.

Since education at home and in school is probably by far the largest factor in producing sound or unsound mental attitudes, it is the responsibility of the home, the school, and the community to develop those ideals and attitudes which will make for a socially adjusted individual who makes all possible contributions to society within the limits of his capacities, his general intelligence, and his physical make-up.

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GLOSSARY

Acceleration, in growth, in learning, in other functions, applies to differences in speed or velocity. Negative acceleration indicates decrease in rate, positive acceleration indicates increase.

Adolescence, a term used to cover the period from the onset of puberty to adulthood. Opinions differ as to the age at which the individual becomes adult. The legal age in the United States is twenty-one years but the individual may not be completely mature until some years later.

Ambivalence, bi-polarity of a marked type; the tendency to swing from one extreme of behavior to its opposite, as from love to hate.

Anthropologist, one who studies the races of mankind.

Anthropology, the science of the development of cultures.

Autonomic nervous system, sometimes called the vegetative nervous system, refers to the two bands of ganglia lying one on each side of the spinal cord and their plexuses (see page 50 and following).

Catatonia, a form of dementia praecox involving the unconscious removal of the individual from external stimuli.

Compensation, a form of escape and defense mechanism which results in the individual seeking in one field the security which he needs because of failure or insecurity in another.

Condition, to develop a response or reaction to a stimulus or set of stimuli, e.g. condition to eat good foods; more simply expressed, to form a habit in relation to.

Conditioned reflex, to attach a reflex originally attached to one set of stimuli to other and different stimuli. The eye blink

originally occurs in response to touch on the cornea. In later life anything approaching the eye is responded to by this reflex. Salivary secretion occurs originally when food or other substance is placed in the infant's mouth. The salivary reflexes may be attached to words descriptive of food, to pictures of food, and so on.

Dementia praecox, the term signifies early or precocious insanity. It occurs characteristically in four forms: dementia praecox simplex, catatonia, paranoid dementia praecox and hebephrenia. (See pages 184 to 193.)

Displacement, a form of escape and defense mechanism, described fully on page 79.

Endocrine glands, the system of ductless glands comprising the thyroid and parathyroid, the pituitary, the pineal, the islands of Langerhans in the pancreas, the sex glands and the suprarenals.

Epiphysis, the section at the terminus of the long bones which ossifies separately, but which becomes united with the rest of the calcified area at maturity.

Exhibitionism, the desire to see and be seen, natural in early childhood; it may develop pathological phases in later childhood and adolescence.

Glycogen, a carbohydrate stored in the liver and injected into the blood stream in strong emotional states.

Hebephrenia, a form of dementia praecox characterized by "silliness."

Heterosexual, pertaining to both sexes, generally used in connection with emotion to indicate interest in the opposite sex as contrasted with homosexual, love interest in individuals of the same sex.

Hormone, a product of secretion which when sent through the body produces the action specific to it in the tissues and organs which it activates. (See discussion under endocrine glands beginning on page 26.)

Hysteria, a form of mental disturbance wholly functional in type, which shows itself in the form of dissociation of function in one or more limbs, of psychological blindness or deafness, or even pseudo-convulsions. (See page 195.)

Identification, a form of escape and defense mechanism in which the individual sees himself as someone else, identifies others with pictures not like themselves and so on. (See page 72.)

Idiot, an individual who even when adult will never have a mental age of more than four years.

Inhibit, to check, to stop, as to inhibit reaching for bright objects, to inhibit the tendency to show off.

Inhibition, to develop the ability to use restraint signifies that the individual has acquired the ability to restrain action at will.

Initiation, into fraternities or primitive societies and the like, implies going through certain ordeals and being taught the rites, traditions and regulations of the group.

Intelligence Quotient, a figure obtained by dividing the chronological age of the individual into the mental age obtained on any standard intelligence test. The figure expresses the ratio between the rate at which the individual develops mentally and his increase in chronological age. Thus I. Q. .75 indicates that mental development has proceeded at three-fourths of the rate of chronological age.

I. Q., abbreviation of the above.

M. A., abbreviation for mental age.

Manic-depressive psychoses, see page 192.

Masochism, the desire to be hurt, to have pain inflicted. The individual derives satisfaction from suffering mental or physical pain.

Maturation, used in connection with both bodily and mental processes to indicate increasing maturity. (See Gesell, Arnold, *Infancy and Human Growth*, for excellent studies of maturation in relation to learning.)

Neurasthenia, a nervous disorder characterized by a general sense of fatigue and lack of energy, irritability, unusual sensitivity to pain, heat, cold and the like.

Neuroses, functional nervous disorders as described on pages 194 and following.

Overt, external, visible to the observer.

Ovary, female sex gland.

Paranoia, *paranoid trends*, *paranoid dementia praecox*, all involve the possession of systematized delusions often persecutory in nature. They may, however, be the grandiose type. (See page 186.)

Projection, a form of escape and defense mechanism, in which blame is dissociated from the individual himself by being projected on other individuals, objects or situations.

Psychasthenia, a nervous disorder characterized by constant worry, marked fears and anxiety; sometimes also characterized by obsessions such as counting fence posts, walking so as to avoid cracks in the pavement, or more seriously kleptomania, pyromania, dipsomania.

Puberty, mature development of the sex organs in either sex to the point of ability to bear offspring.

Pubic rites, see *Initiation*.

Sadism, the desire to hurt. Satisfaction is gained from inflicting pain on persons or animals.

Visceral, relating to the internal organs, especially those contained in the trunk cavity.

Vital capacity, refers to lung capacity as measured by the spirometer; supposed to indicate maximum intake of breath.

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